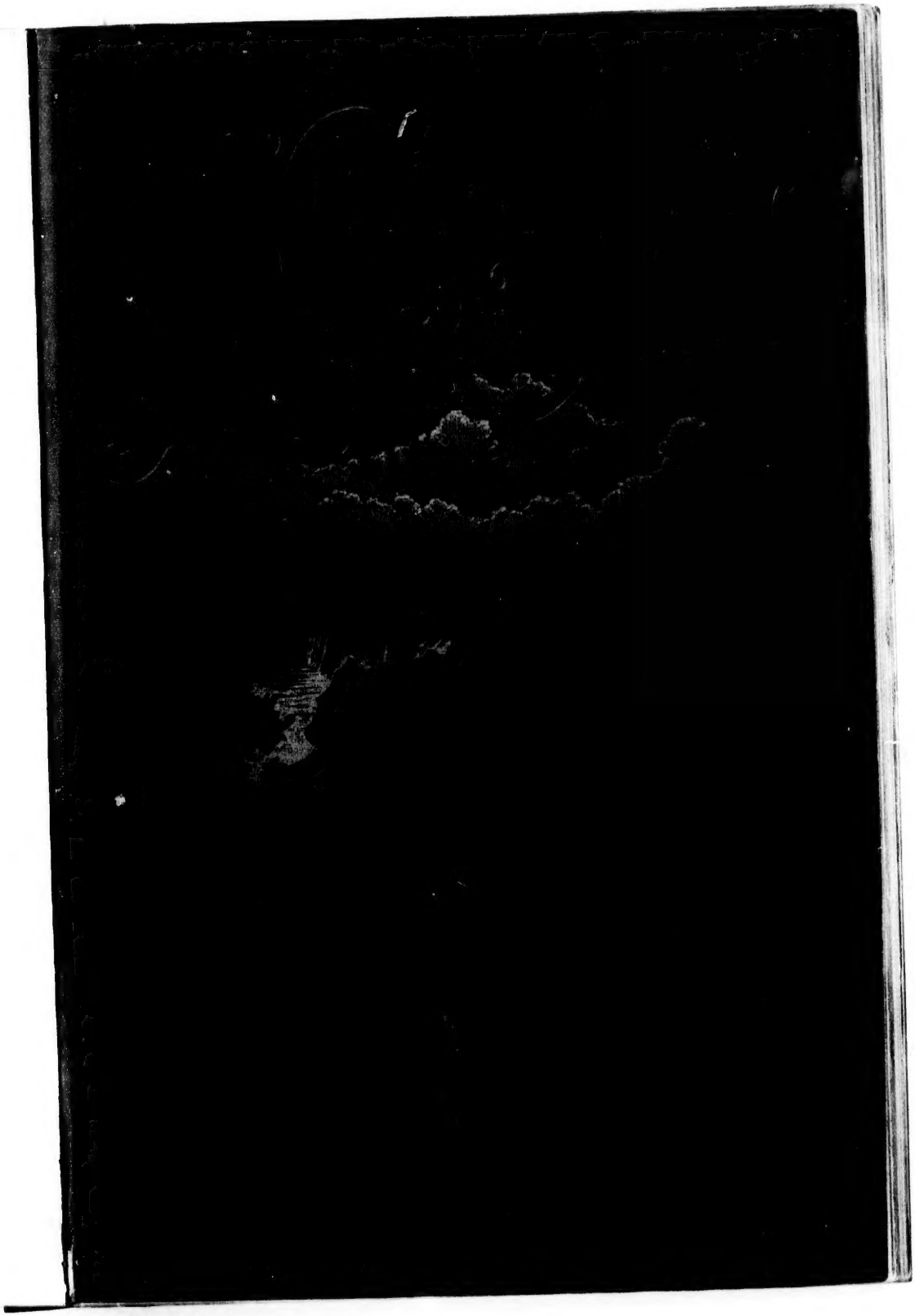

BLONDIN, THE HERO OF NIAGARA.

MR. BLONDIN was born on the 28th of February, 1824, in the village of St. Omer, Pas de Calais, France. His father was one of the Old Guard, and had fought under Napoleon during the Russian war at the battles of Moscow, Austerlitz and Wagram. He died before little Blondin had reached his ninth year. When but four years of age the little one had already shown signs of extraordinary courage and ability, and was therefore brought by his father to the school of higher gymnastic science of Lyons, where, after a season of six months, he was declared by the Directory able to perform before the public. We do not wish to describe his boyhood, but we will follow him to America—the place of his fame. Blondin is, without any question or doubt, the king of the tight-rope, and although he has found so many rivals there has not been one to equal him or to be able to say to him "I can do the same as you."

Till the year 1855 very little was known to the world of the rope dancing genius; but at that time Blondin gave up his ordinary attendance at festivals in villages and towns, and undertook a voyage to America as a member of a gymnastic troupe called the "Ravel Family." Here in America his talent made itself known in a wonderful performance. Antoine Ravel appeared one evening with the *pièce de résistance* of the programme. He placed a cordon of Arabian soldiers around him, with bayonets on the tops of their guns, intending to jump over their heads and the bayonets. As he was still occupied trying to arrange them and displeased that they could not stand as he wished, Blondin, standing in the middle of the ring, uncostumed, and assisting in arranging the men, tried for fun to jump over them unprepared as he was, to the amazement of the public. He succeeded in a masterly manner and from that moment his renown began.

In the winter of 1858 the thought occurred to him to work at his own risk, and to be independent. He visited Niagara Falls, and took it into his head to stretch a rope 170 feet long over the waterfall, and walk across. It was, of course, impossible to attempt this in the winter, but he took up his residence there in the hotel so as to be able to give his exhibition in the spring. The rope which he had made for the purpose was 1100 feet long.

When the information of his intention was published in the papers it seemed almost incredible, but what was at first supposed to be humbug spread rapidly over the United States, and at length in the presence of 50,000 persons, Blondin walked across the Niagara on the 30th of June, 1859. The whole Union talked about the audacious Frenchman. Not satisfied with this result he repeated the walk, wrapped in a sack, and just as safely as if he had used his eyes.

On the 13th of July in the Buffalo Theatre, he carried a man on his shoulders along a wire rope extending from the stage to the third gallery—up to the top and down again. On the 16th of July he walked over Niagara again, rolling a wheel-barrow. On the 15th of August he commenced again giving exhibitions on the wire rope. On the 19th he carried a man over on his back to the astonishment of thousands of people. On the 2d of September he went by night and stood on the rope on his head in the light of the fireworks.

During the summer of 1860 he went across often on the rope, carrying a man on his back. His last performance at Niagara took place in the presence of the Prince of Wales and his suite. The Prince was almost breathless when the feat was accomplished, and with a heavy sigh exclaimed—"Thank God its all over!" The Prince called Blondin to him, and, showing his admiration, asked him what kind of a feeling he had when walking on the rope; whereupon Blondin answered, "Nothing, but the necessity of keeping the balance."

In the suite of the Prince there was a photographer who took the picture of the rope-dancer during his passage across. Without a balance pole, Blondin stood still with his companion on his shoulders till the picture was taken. The next day he received from the Lord Steward of the Prince a remittance of money and the following document:

"Major-General Bruce has been deputed by the Prince of Wales to send the enclosed check to Mr. Blondin, and to say, that His Royal Highness had witnessed with very much interest the exhibition of courage and skill which Mr. Blondin gave yesterday, and desired to express his admiration of the personal courage evinced at that grand performance.

"*Niagara Falls*, 15th September, 1860."

The inhabitants of Niagara village, to whom his performances by attracting many thousands of people had brought much money, presented him with a medal.

In conclusion let it be mentioned, that, on account of the carefulness with which Mr. Blondin works, harm has not come to him up to the present time, and we trust never will. Mr. Blondin went on a tour through India, Java, China, the Philippine Islands, Siam, New Zealand and Australia from 1874 to 1877.

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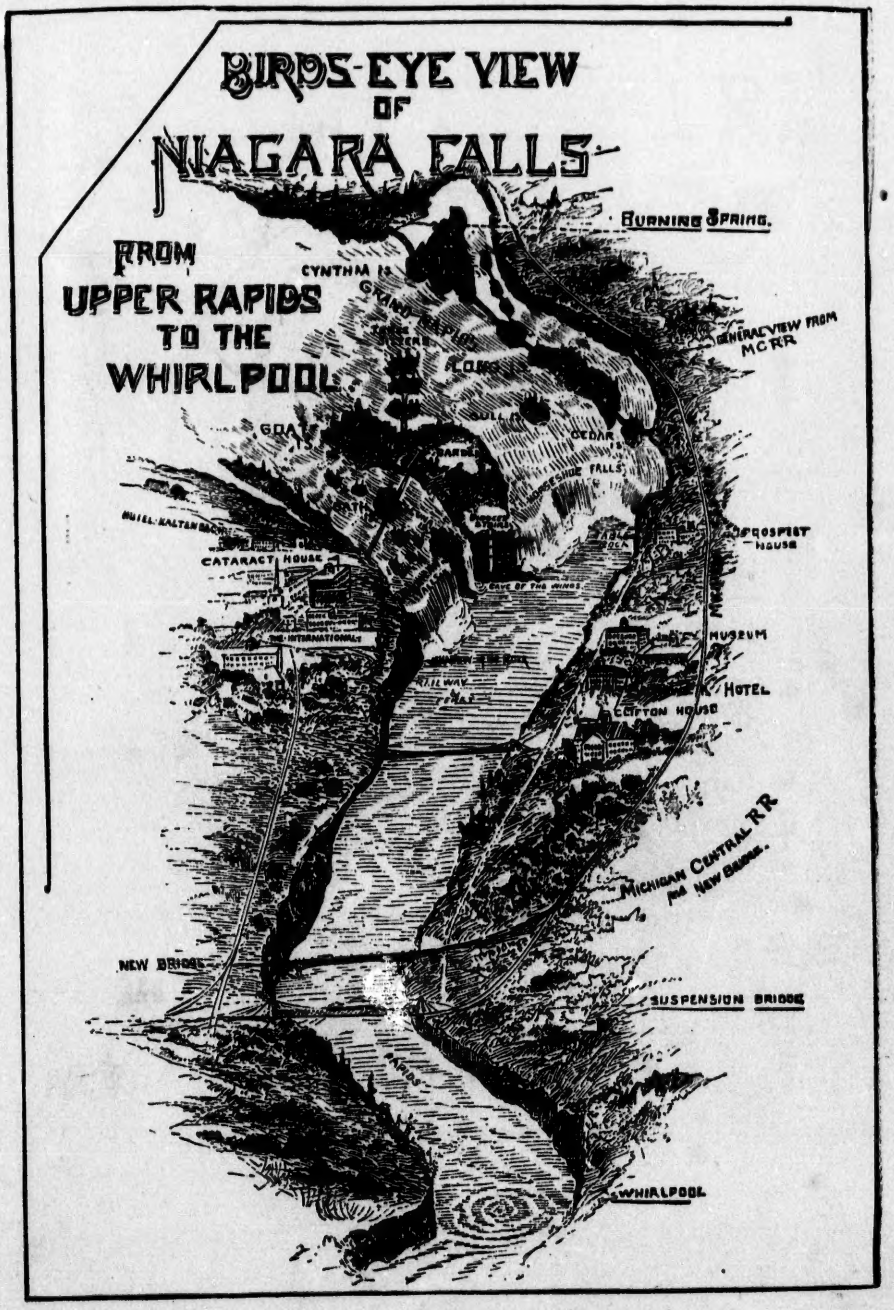

NIAGARA PARK
STATE OF
NEW YORK
ENACTED MAY 16
1885
L. MEINERTHAL SC

Lotheran, Mrs. Alice (Hyneman)

NIAGARA PARK

ILLUSTRATED.

ORIGINAL AND SELECTED.

DESCRIPTIONS, POEMS

AND

ADVENTURES.

4/3271

EDITED BY ALICE HYNEMAN RHINE.

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BIRD'S-EYE VIEW OF NIAGARA

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A GUIDE

TO

POINTS OF INTEREST

IN AND AROUND

NIAGARA PARK.

THE various points of interest in the vicinity of the Great Falls are given below in the order in which they are usually visited. On the following pages will be found the noteworthy things connected with each place.

AMERICAN SIDE.

Goat Island Bridge.
American Rapids above the Falls.

GOAT ISLAND GROUP.

Bath Island.
Luna Island.
Chapin Island.
Robinson Island.
Ship and Brig Islands.
Three Sisters Islands.
The Center Fall.
The Three Profiles.
Hog's Back.
Biddle Stairs.
Cave of the Winds.
Rock of Ages.
Terrapin Bridge.
Head of Goat Island.
The Leaping Rock.

PROSPECT PARK.

The Point.
Inclined Railway.
Shadow of the Rock.
Hurricane Bridge.
Whirlpool Rapids—American side.
The Whirlpool—American side.
The Devil's Hole.
Lewiston.
Fort Niagara.
Indian Village.

CANADIAN SIDE.

View from Above.
General View.
American Falls (Front View).
Table Rock.
Horseshoe Fall.
Spiral Staircase.
Under Table Rock.
Behind the Horseshoe Fall.
Canadian Rapids above the Falls.
Cedar Isle Pagoda.
Grand Rapids Drive.
Castor and Pollux Bridges.
Cynthia Island.
Clark Hill Islands.
The Lovers' Walk.
Burning Spring.
Museum.
The Ferry.
New Suspension Bridge.
Railway Suspension Bridge.
Whirlpool Rapids Park.
Whirlpool and Manitou Rock.
Brock's Monument.
Queenston.
Niagara Town.
Fort Missasauga.
Drummondville.
Lundy Lane Battle Ground.
Navy Island.
Chippewa Battle Ground.

BIRD'S-EYE VIEW OF NIAGARA

DISTANCES FROM PRINCIPAL HOTELS.

THE following table of distances between the various points are given in condensed form, to enable the traveler to find out at a glance how far the places lie apart, and thus economize his time.

	AMER. SIDE.	CANADA SIDE.
Around Goat Island,	1½ miles.	2 miles.
" Prospect Park,	¼ "	1 "
To New Suspension Bridge,	¼ "	½ "
" Railway " "	2 "	2 "
" Michigan Central Cantilever Bridge,	1¾ "	1¾ "
" Whirlpool Rapids,	2½ "	2½ "
" Whirlpool,	3 "	2¾ "
" Devil's Hole,	3½ "	4 "
" Top of Mountain,	6½ "	7 "
" Indian Village (Council House),	8 "	8½ "
" Table Rock,	— "	½ "
" " " via New Suspension Bridge, or Ferry,	1½ "	— "
" " " " Railway Suspension Bridge,	4¾ "	— "
" Burning Spring,	— "	1½ "
" " " via New Suspension Bridge,	2½ "	— "
" " " " Railway Suspension Bridge,	6 "	— "
" Lundy's Lane Battle Ground,	2 "	1½ "
" Brock's Monument, Queenston Heights,	7 "	7 "

In the interest of both visitors and drivers of carriages a schedule is here appended of the amount of fare allowed by law, to be collected for services rendered.

RATES OF FARE

ALLOWED BY LAW IN THE VILLAGE OF NIAGARA FALLS, N. Y., FOR THE USE AND HIRE OF CARRIAGES WHERE NO EXPRESS CONTRACT IS MADE THEREFOR:

For carrying one passenger and ordinary baggage from one place to another in the Village,	$0 50
Each additional passenger and ordinary baggage,	0 25
For carrying one passenger and ordinary baggage from any point in this village to any point in the village of Suspension Bridge,	1 00
Each additional passenger and ordinary baggage,	0 50
Each additional piece of baggage other than ordinary baggage,	0 12

Children under three years of age, free.

Over three years and under fourteen years of age, half price.

Ordinary baggage is defined to be one trunk and one bag, hat or handbox, or other small parcel.

For carrying one or more passengers, in the same carriage, from any point in this village to any point within five miles of the limits of the village, at the rate of one dollar and fifty cents for each hour occupied, except that in every instance where such carriage shall be drawn by a single horse, the fare therefor shall be at the rate of one dollar per hour for each hour occupied.

NIAGARA PARK.

POINTS OF INTEREST ON THE AMERICAN SIDE.

GOAT ISLAND GROUP.

GOAT ISLAND is considered the most important point at Niagara. It stands on the verge of the cliff over which the cataract pours, and divides the river in such a manner as to form from its waters two falls—the one being known as the *American* the other as the *Horseshoe* or *Canadian Falls*. Near Goat Island are several smaller islands, notably Bath Island, Luna Island, Terrapin Rocks, Three Sisters Islands. These are made accessible by bridges, and, with ten others not yet bridged, are all included under the head of the Goat Island Group.

The attractions of Goat Island were such that long before it was bridged it was visited from time to time by persons undeterred by the peril of reaching it. Cut in the bark of a beech tree, the late Judge Porter found the dates of 1771, 1772 and 1779. The first bridge erected across Goat Island was built in 1817. This was washed away in the following winter by the high water and ice. In 1818 it was replaced by one which lasted from 1818 to 1856. This was removed to give place to the present elegant structure—remarkable from the fact that it spans one of the most turbulent of any known rapids. How the bridge was built over the rapids is thus described by Col. Porter: "A suitable pier and platform was built at the water's edge; long timbers were projected over this abutment the distance they wished to sink the next pier, heavily loaded on the end next to the shore with stone, to prevent their moving. Legs were framed through the ends of the projecting timbers, resting upon the rocky bottom, thus forming a temporary pier, around which a more substantial one was built. These timbers were then securely fastened to this pier, cross-boards were spiked on, and the first section was done. The plan was repeated for each arch."

Iris Island was formerly the much more appropriate name for Goat Island. It owes its present name to the fact that some goats,

placed there to pasture in 1779, perished from cold during the winter. The area of Goat Island is sixty-one and a half acres. It is a lovely and romantic spot, densely wooded, and has been left in much of its primeval simplicity. In ancient times it was one of the favorite burying-grounds of the Indians.

THE AMERICAN RAPIDS ABOVE THE FALLS.

Crossing the first bridge a grand view of the rapids is obtained. Looked at from this point, the rapids present an appearance of plunging from the sky, a peculiarity which the Canadian rapids have when seen from the Canada shore. Their course for the distance of three-quarters of a mile is "over ledges of rugged rocks, making a descent of fifty-two feet on the American side and fifty-seven on the Canada side.

HOG'S BACK.

At the northwest part of the island is a narrow ridge, named, from its shape, Hog's Back. From this is gained an excellent view of the American Falls.

LUNA ISLAND.

Descending a flight of stairs and crossing a bridge over the stream that forms the Center Fall, the traveler reaches Luna Island, so called because the Luna bow is seen here to the best advantage.

THE THREE PROFILES

Form a part of Luna Island. They are an irregular projection of a portion of the precipice, and are almost under the American Fall. They obtain their name from a fancied likeness to three human faces.

THE CENTER FALL,

Passed over on the way to and from Goat Island, is a stream one hundred feet high and well worthy of notice.

THE BIDDLE STAIRS.

These are a few paces from the bridge. They were erected in 1829, by Mr. Biddle, president of the United States Bank. They are eighty feet high, and are firmly secured to the cliff by ponderous iron bolts, which are said to be perfectly safe. The total descent from the top of the bank to the bottom is one hundred and eighty-five feet.

THE CAVE OF THE WINDS.

A few moments' walk from the foot of the Biddle Stairs is the Cave of the Winds. This is behind the Center Fall, and is by all means the best place to go behind the sheet of water. The cave is one hundred feet high by one hundred deep, and one hundred and sixty long. Its excavation is due to the action of the water upon the shale, leaving the more solid limestone rock overhanging. This projecting above about thirty feet beyond the base, an open cave is formed over which falls the never-ceasing torrent of Niagara. A dress of water-proof material is requisite to be worn by all visitors to the Cave of the Winds.

THE ROCK OF AGES.

This is the huge rock which lies at the foot of the Falls in front of the Cave of the Winds.

TERRAPIN BRIDGE.

The next interesting point of observation is Terrapin Bridge, where for forty years the well-known Terrapin Tower standing on the verge of the Falls, constituted a landmark to be seen from all directions. It was blown up in 1873, as it was believed to be unsafe. The Bridge being near enough to the Fall to be affected by its spray, those who pass over it should avoid exposure.

THREE SISTERS ISLANDS.

Located in the midst of the rapids, they afford desirable points from which to observe the scenery. From the head of the third Sister may be seen one continuous cascade, extending as far as the eye can reach, from Goat Island across to the Canada shore, and from which the spray rises in beautiful clouds. This presents a phenomenon that has been termed the

LEAPING ROCK.

The water striking against the rock, rises perpetually in an unbroken column, twenty feet or more high, producing a brilliant effect.

THE HERMIT'S CASCADE

Is a beautiful fall, spanned by the first Sister Island bridge.

PROSPECT PARK

Is a piece of land some twelve acres in extent, which adjoins the American Fall. It comprises what is known as the old ferry, and some lands extending from Rapids Street to the new Suspension Bridge. The main entrance to the park is through the gateway, of which a cut is here given. This is one of the structures that will, in all probability, be removed when the attempt is made to restore Niagara to its primal simplicity.

PROSPECT PARK ENTRANCE.

THE INCLINED RAILWAY.

From the cliff the visitor descends to the water's edge either by a stairway numbering some three hundred stairs, or in a car running on an inclined railway. This railway is built within a tunnel cut from the cliff to the margin of the river, at an angle of about thirty degrees. The cars are raised and lowered by machinery, being so arranged that one ascends while the other descends.

PROSPECT POINT.

A point of land on the brink of the Falls. Here the waters descend in an unbroken mass. Immediately in front is the American Fall, its waters almost within reach of the outstretched hand.

THE SHADOW OF THE ROCK.

The name given to the space between the rock and the sheet of water at the end of the American Falls.

HURRICANE BRIDGE.

A point from which may be seen a tremendous cloud of mist, fringed with all the colors of the rainbow. The scene is wild and sublime. Looking upwards to the crest of the cataract, the immense mass of water seems to pour down from the skies.

WHIRLPOOL RAPIDS.

The Whirlpool Rapids, as seen from the American side, have a peculiar charm in the fierce glint of the sunlight illuminating the crests of the flood, and in the emerald and opal translucence of the waters passing onward in their swift career. On the American side a double elevator, and on the Canada side an inclined railway, have been provided to descend to the water's edge, and give a near view of the wild scene.

THE WHIRLPOOL.

The Whirlpool is half a mile below the Rapids. It is a vast basin or amphitheatre opening at right angles with the river above. The pool is shut in on all sides, save the opening mentioned, by rocky cliffs three hundred and fifty feet high, whose sides, facing the river, are quite smooth and perpendicular. The basin containing this pool is nearly circular, and, together with the water, form a very picturesque scene. The Whirlpool may be seen to advantage from either the Canadian or the American side.

THE DEVIL'S HOLE.

Three and a half miles below the Falls, on the American side, is the Devil's Hole, a chasm in the bank of the river, between one hundred and two hundred feet deep. This chasm was cut by the stream continuously flowing into it, aided by the enormous force which the Falls reached at this point.

LEWISTON, N. Y.,

Opposite Queenston, is beautifully situated, about seven miles from the Falls. Is a place of some importance, and stands at the head of the navigation of the river.

FORT NIAGARA.

There are many interesting associations connected with this spot. During the earlier part of the past century, it was the scene of many bloody conflicts between the whites and the Indians, and later between the English and the French. La Salle in 1678 established a trading post there. Fort Niagara stands at the mouth of the Niagara River on the American side.

INDIAN VILLAGE.

The Tuscarora Indian Reservation, nine miles northeast of the Falls, is a strictly Indian village, and well worth a visit.

CANADIAN SIDE.

On the Canada shore, at a point near the Clifton House, one of the best general views of Niagara Falls is to be obtained. The large cataract stretching from shore to shore is the Canadian Horseshoe Fall, whilst the smaller one is the American.

AMERICAN FALLS—FRONT VIEW.

From a small platform on the ledge opposite the Brunswick House there is charming front view of the American and Center Falls.

TABLE ROCK.

Table Rock exists now only in name, and the interest attached to its site. In old times it was one of the most famous points about Niagara. A spiral staircase anchored to the banks at the north end of Table Rock leads under Table Rock and to the foot of Horseshoe Fall. Dresses of waterproof and a guide are necessary for those who wish to pass below Table Rock and under the Falls.

HORSESHOE FALL.

This is the edge of the famous Cataract. The depth of the water in the centre was ascertained to be more than twenty feet, by an experiment made with an unseaworthy vessel, the Michigan, which was sent over the Falls in 1827. This Fall is nineteen hundred feet across, with a plunge of one hundred and fifty-eight feet. Fifteen hundred million cubic feet of water pass over the ledge every hour. The shape of the Horseshoe curve has been spoilt by the falling at various times of portions of the cliff.

TABLE ROCK AND BEHIND THE FALLS.

Here the view is grand to an awful degree and the tremendous magnificence of Niagara is impressed more than ever upon the beholder who gazes upward at the beetling cliff that seems ready to fall, and, poising under the thick curtain of water—so near that it seems as if it could be touched—hears the hissing spray and the deafening roar that issues from the misty vortex below. The precipice of the Horseshoe Fall rises perpendicularly to a height of ninety feet.

CANADIAN RAPIDS ABOVE THE FALLS.

These beautiful waters are to be seen from the crest of Table Rock. Cedar Island is reached by crossing the river. The Grand Rapids Drive leads along the Canadian Rapids to the five Clark Hill Islands, which are connected to the main land by the suspension bridges "Castor" and "Pollux." Cynthia Island is opposite the renowned

BURNING SPRING,

The water of which is highly charged with sulphureted hydrogen gas, which, when lit, emits a pale blue light. This spring, tradition says, was known to and worshiped by the Indians, who considered it as one form of the Great Spirit.

MUSEUM BUILDING.

This, at present, is in the village, and contains a collection of curiosities.

NEW SUSPENSION BRIDGE,

In full view of the Great Cataract, from it can be had an excellent view of the Falls.

OLD SUSPENSION BRIDGE

Is two miles below the Falls. It was built in 1855, by John A. Roebling, and is considered a marvel of engineering skill.

BROCK'S MONUMENT

Stands on Queenston Heights, four miles below the Whirlpool. It is erected to the memory of the British General, Sir Isaac Brock, who fell in the war of 1812.

QUEENSTON, ONTARIO,

Noticeable on account of the battle that took place on the neighboring heights.

NIAGARA TOWN,

On the Canada shore. A short distance above the town are the remains of

FORT GEORGE,

Which was taken by the Americans in 1813; afterward destroyed by the British and left in ruins.

NEW SUSPENSION BRIDGE.

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PROSPECT PARK INCLINED RAILROAD.

EARLY APPEARANCE OF NIAGARA.

THE first description of the Falls of Niagara, given by an eye-witness, is that of Father Hennepin, who, in 1678, in the double character of priest and historian, accompanied La Salle in his expedition to the upper lakes. Father Hennepin's account published in 1697 is exceedingly interesting, as he gave a full and glowing description of the Falls as they appeared at that time, before erosion had worn them away to their present appearance. His history was further enriched by a sketch of the Falls, which was the first known representation of Niagara. This is reproduced in exact fac-simile on the following page, and for the benefit of those curious in such things the following extract is given from the enthusiastic Father's recital :

Hennepin's Account.

A description of the Fall of the River Niagara which is to be seen betwixt the Lake Ontario and that of Erie.

Betwixt the Lake *Ontario* and *Erie*, there is a vast and prodigious Cadence of Water, which falls down after a surprizing and astonishing manner, insomuch that the Universe does not afford its Parallel. 'Tis true, *Italy* and *Suedeland* boast of some such Things; but we may well say they are but sorry patterns, when compar'd to this of which we now speak. At the foot of this horrible Precipice, we meet with the River *Niagara*, which is not above a quarter of a League broad, but is wonderfully deep in some places. It is so rapid above this Descent, that it violently hurries down the wild Beasts while endeavoring to pass it to feed on the other side, they not being able to withstand the force of its Current, which enevitably casts them headlong above Six hundred foot high.

This wonderful Downfall is compounded of two cross-streams of Water, and two Falls, with an isle sloping along the middle of it. The Waters which fall from this horrible Precipice, do foam and boyl after the most hideous manner imaginable; making an outrageous Noise, more terrible than that of Thunder; for when the Wind blows out of the South, their dismal roaring may be heard more than Fifteen Leagues off.

The River *Niagara* having thrown it self down this incredible Precipice, continues its impetuous course for two Leagues together, to the great Rock above-mention'd, with an inexpressible rapidity: But having passed that, its impetuosity relents, gliding along more gently for other two Leagues, till it arrives at the Lake *Ontario* or *Frontenac*.

FAC-SIMILE OF A VIEW OF NIAGARA FALLS BY FATHER HENNEPIN.
(From the Original Utrecht Edition, 1697.)

Any Bark or greater Vessel may pass from the Fort to the foot of this huge Rock above mention'd. This Rock lies to the Westward, and is cut off from the Land by the River *Niagara* about two Leagues further down than the great Fall, for which two Leagues the People are oblig'd to transport their goods overland; but the way is very good; and the Trees are very few, chiefly Firrs and Oaks.

From the great Fall unto this Rock,* which is to the West of the River, the two brinks of it are so prodigious high, that it would make one tremble to look steadily upon the Water, rolling along with a rapidity not to be imagin'd. Were it not for this vast Cataract, which interrupts Navigation, they might sail with Barks, or greater Vessels, more than Four hundred and fifty Leagues, crossing the Lake of *Hurons*, and reaching even to the farther end of the Lake *Illinois*, which two Lakes we may easily say are little Seas of fresh Water.

Father Hennepin's account was followed by that of La Hontaine who came to America in 1687. His account, like that of the former, greatly exaggerated the height of the Falls. He described the cataract of Niagara as being "seven or eight hundred feet high and half a league broad. Towards the middle of it" he says, "we descry an island, leaning towards the precipice as if it were ready to fall. All the beasts that do attempt to cross the waters within half a quarter of a league above this unfortunate island are sucked in by the stream. They serve for food for the Iroquois, who take them out of the water with their canoes. Between the surface of the water that shelves off prodigiously, and the foot of the precipice three men may cross it abreast, without any other damage than a sprinkling of some few drops of water."

Other travelers besides Hennepin and La Hontaine describe a rock which projected upon the west side of the river, and turned a part of the water at right angles, making it form a cross Fall. Peter Kahn, a noted Swedish botanist, wrote of a precipitation of the rocks at a point where the water was turned originally out of its direct course, which occurred a few years previous to his visit in 1750. This statement corroborates the plan of the Falls as given by Father Hennepin.

By comparing the accompanying fac-simile of a painting made by Cole in 1833 with that of Hennepin's, the changes can be seen that time had made in the appearance of the Falls. "Within the memory of many of the present inhabitants of the country," wrote Weld the English artist in 1706, "the Falls have receded several yards. Tradition tells us that the Great Fall, instead of having been in the form of a horseshoe, once projected in the middle. For a century past, however," he says, "it has remained nearly in its present form."

This latter statement is questionable as the Falls are constantly changing their appearance. Within the past century they have receded so much—some say one hundred feet—that the name Horseshoe is no longer applicable to them. Portion after portion of the cliff has fallen at various times until the shape is now more nearly rectangular than curved.

*The Rock above mentioned was a huge boulder or mass that was found on the river bank near the foot of the mountain, and just above the village of Lewiston.

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GENERAL VIEW OF NIAGARA FALLS.
(From Painting of Tom Cole, in 1833. Engraved in the style of that period.

GEOGRAPHICAL AND HISTORICAL.

The Niagara River.

SHORT as the Niagara River is—its entire length being only thirty-six miles—twenty-two from Lake Erie to the Falls, and fourteen miles from the Falls to Lake Ontario, it is one of the most famous rivers in the world. It is the outlet of Lake Erie and the channel by which all the waters of the four great upper lakes flow toward the Gulf of St. Lawrence. In this, their short passage from Lake Erie to Lake Ontario, there is a total descent of three hundred and thirty-four feet, leaving the lower lake still two hundred and thirty-one feet above the sea level. From the north-eastern extremity of Lake Erie, the Niagara flows northward with a swift current for the first two miles and then widens and divides, a portion passing on each side of Grand Island. Below the island the stream unites again, spreads out, two to three miles in width, and appears like a quiet lake studded with small low islands. About sixteen miles from Lake Erie is the commencement of the rapids, the waters rolling in great swells as they rush swiftly down among the rocks, accomplishing in this distance a fall of fifty-two feet. The great cataract is the termination of the rapids, the precipitous descent of which is one hundred and sixty-four feet on the American side, and one hundred and fifty on the Canadian. Here the river makes a curve from west to north and spreads out to a width of about four thousand seven hundred and fifty feet.

The sources of the Niagara River are:

Lake Superior,	355	miles long,	160	miles wide,	1,030	feet deep.
" Huron,	260	"	100	"	1,000	"
" Michigan,	320	"	70	"	1,000	"
" St. Clair,	49	"	15	"	20	"
" Erie,	290	"	65	"	84	"

Besides these, several smaller lakes, with one hundred rivers large and small, pour their waters this way, draining a country of more than one hundred and fifty thousand square miles. Almost half a continent serves for this drainage, whose remotest springs are two thousand miles from the ocean.

To a supply so abundant, which is said to comprise half the fresh water on the globe, the fact is due, which travelers have observed, that the flow of Niagara never varies perceptibly in volume. Where it thunders over the

Falls, no eye can perceive a difference in its weight, sound or violence, whether it be visited amid the drought of autumn, the storms of winter, or after the melting of the upper world of ice, in the days of the early summer. At other cataracts the waters may fail, but at Niagara, never. There it is always seemingly the same, as it was perhaps before the existence of man, as it may be after he has ceased to be, or until that time spoken of by Tyndall, when thousands of years shall have worn the rocky bed of the river away back to to the upper lakes. In opposition to this belief there is a tradition that there is a periodical rise and fall in the level of the lakes, embracing a period of fourteen years. It is said that in 1843, 1857, and 1871 the Niagara River was very low. As 1885 forms the next cycle there will be this year a chance to verify the truth of this tradition. Col. Porter in his Guide Book to Niagara Falls, states "that on March 29, 1843, a heavy gale from the west caused the highest water ever known. The water rose six feet perpendicularly on the rapids, and on March 29, 1848, a strong east wind drove the water back into Lake Erie. The heavy ice was wedged in at the mouth of the river. This dammed the water up, and soon the river was nearly dry. The rocks under the rapids were bare, and people walked and drove over them. The Falls, of course shrank to a mere nothing. The next morning

OUTLET OF NIAGARA RIVER.

the ice was forced out, and Niagara resumed its sway, but the sights and the experiences of that day were novel ones."

It has been calculated that the average depth of the river from Lake Erie to the Falls is about twenty feet. Between the Falls and the Whirlpool, the depth varies from seventy-five to two hundred feet. At the Rapids it is estimated at two hundred and fifty feet, and in the Whirlpool at four hundred. This is the depth of the water alone. The mass of stone, gravel, shale, etc., which in one way and another has been carried into the channel, lies below the water and above the original bottom of the gorge, which, therefore, is probably as deep again. Various estimates have been given of the amount of water going over the Falls. A point three hundred feet wide below the Falls being selected, the depth estimated, and the velocity of the current known, it was estimated that 1,500,000,000 cubic feet passed that point every minute.

Another estimate says 100,000,000 of tons pass through the Whirlpool every hour.

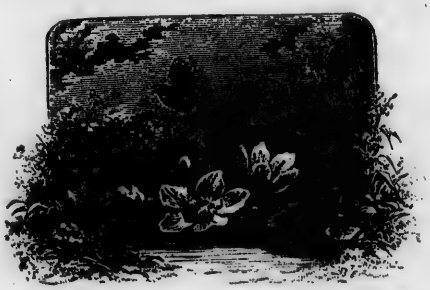
Judge De Veaux estimated that 5,000,000,000 barrels go over every twenty-four hours; 211,836,853 barrels an hour; 3,536,614 barrels a minute; 58,343 barrels each second.

The Falls are in latitude 43° 6″ north; longitude 2° 5″ west from Washington, or 79° 5″ west from Greenwich.

The Horseshoe Fall has an aggregate length of over 2,000 feet; the American Fall, about 800 feet.

The name of the Niagara River has given rise to much controversy between philologists. Some suppose it to be simply a contraction of the Indian word *Oniahgahrah* meaning "thunder of waters." Others find its origin in *Onyahrah*, which signifies neck, and might be applied to the peninsula, a neck of land between the two lakes. The more numerous believe it to be derived from the name of a tribe dwelling on the northern bank of the river when first discovered by the whites. The missionaries called these people the *Neutre Nation*, because they endeavored to live at peace with the Huron and Iroquois tribes, but they appear to have called themselves *Onghiahrahs*. Niagara is but one of forty known ways of spelling the name.

From its situation lying between the two great lakes and unrivaled in all North America for its genial climate and fertile soil, Niagara has been from time immemorial the scene of bloody contests. Long before its discovery by the whites it had been the theatre for Indian wars. The Hurons dwelt to the north, the Iroquois to the south, between these were the Niagaras, a brave but not warlike people, who were in time absorbed or destroyed by their fiercer neighbors. In the eighteenth century the tribe became extinct.

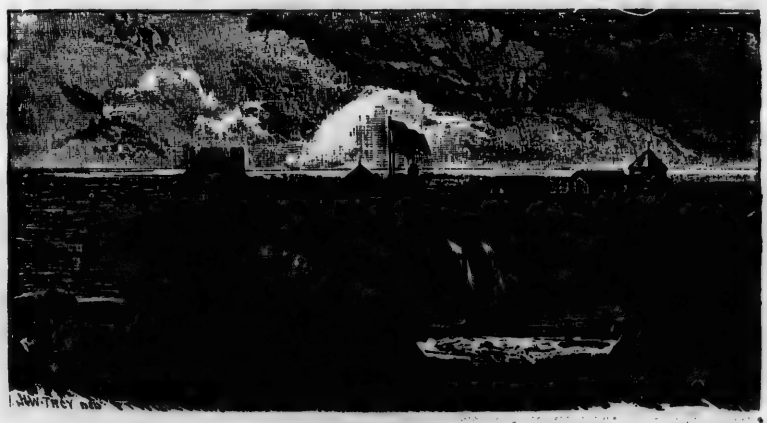


Contests between the French

and English and settlers was carried on all along its borders for more than one hundred years. These ceased finally in 1763, French rule in North America becoming virtually extinct after the capture of Quebec by Gen. Wolf, in 1759.

From this time there was a season of comparative quiet until the war of 1812 between America and Great Britain set the country again into a ferment. Then, all along the river banks a series of forts were erected; these, only palisades at first, were gradually strengthened into permanent strongholds, stretching from Buffalo to Lake Ontario. Among these Buffalo and Fort Niagara were considered the American Strongholds. Fort Erie and Queenstown Heights those of the British.

Fort Niagara is still an American point of defence regularly garrisoned, situated fourteen miles from the Falls at the mouth of the river. La Salle established it first as a trading post in 1678. In 1687 De Nouville built the



FORT NIAGARA.

first fort for the prosecution of a war upon the Iroquois nation. The English General, Prideaux, was killed here in 1759, and after the battle, the French surrendered it to Sir William Johnson. In this fort is the dungeon, where in 1824, Morgan, of anti-masonic fame, was said to have been confined, and from whence it was claimed he was taken out and drowned in the lake.

The war between America and England ended in the year 1814. With the re-establishment of peace that boundary line was agreed upon which now divides the United States from Canada. By the treaty of Ghent, signed in 1815, this boundary line runs through the centre of the Great Lakes and the deepest channel of the river. Over three-fourths of the islands in the river belong to the United States. Of these islands, thirty-six in number, Grand Island is the largest, and Goat Island the most famous. Goat Island being famous not only as the point from which the finest views of the cataract are obtained, but it is the ground on which the Geologist finds many proofs for his theories of the retrocession of the Falls.

GEOLOGICAL ASSUMPTIONS.

GEOLOGISTS tell that retrocession of the Falls began at the mountains, near Lewiston; the bluff, or top of the mountain six miles below the Falls being the old shore of Lake Ontario. The premises upon which this conclusion is based, are the immense erosive powers of sand, combined with moving waters; the ages which these forces have been in operation; the fact, that even within the memory of the present generation, the Falls have perceptibly receded, and that fluviatile shells, and forms of marine life have been found imbedded in the sand and gravel of Goat Island and the lower river bank, similar to those which are now found in the Niagara River higher up.

This deposit, found some thirteen feet below the soil, is supposed to prove that the greater part of Goat Island was at one time submerged. Professor Lattimore says they are the records of prehistoric ages, that "the delicate forms of marine life which so abound in some of the rocky strata plainly indicate their origin at the bottom of a shallow and semi-tropical sea which once must have occupied the place. The great chasm is newer than the rocks through which the river has ploughed its way, and it is plain that a time must have been when the river itself had not yet taken form. Again, ages later, the same river begins to fill its bed with alluvial deposits, and again it destroys its own work, leaving only the gravelly beds of Goat Island, and the curious series of terraces still happily preserved in Prospect Park, as fragmentary monuments. Here are records of the past, antedating all human history, of the most authentic character, unfalsified by any ignorant or designing hand."

Of the retrocession, Sir Charles Lyell is of opinion "from a mere cursory inspection of this district, that the Niagara once flowed in a shallow valley across the whole platform from the present site of the Falls to the Queenston heights, where it is supposed the cataract was first situated, and that the river has been slowly eating its way backwards through the rocks for a distance of seven miles. According to this hypothesis, the Falls must have had originally nearly twice their present height, and must have been always diminishing in grandeur from age to age, as they will continue to do in future so long as the retrograde movement is prolonged. It becomes, therefore, a matter of no small curiosity and interest to inquire at what rate the work of excavation is now going on, and thus to obtain a measure for calculating how many thousands of years or centuries have been required to hollow out the chasm already excavated."

Sir Charles Lyell set at work to answer these questions, by investigating thoroughly the rock formations of Niagara. A short excerpt from his published results is given on the following pages, in which he seems to prove conclusively that the river once extended farther northwards, at a level sufficiently high to cover the greater part of Goat Island.

ROCK FORMATIONS, NIAGARA.

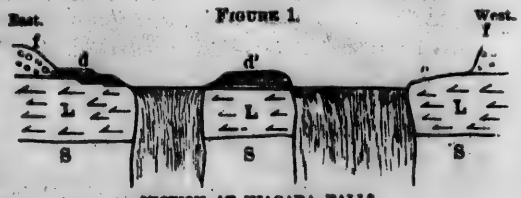
GEOLOGICAL EVIDENCE OF RETROCESSION.

SIR CHARLES LYELL.

LONG before my visit to Niagara I had been informed of the existence on Goat Island of beds of gravel and sand containing fluviatile shells, and some account had been given of these by Mr. Hall in his first report. I therefore proposed to him that we should examine these carefully, and see if we could trace any remnants of the same along the edges of the river cliff below the Falls.

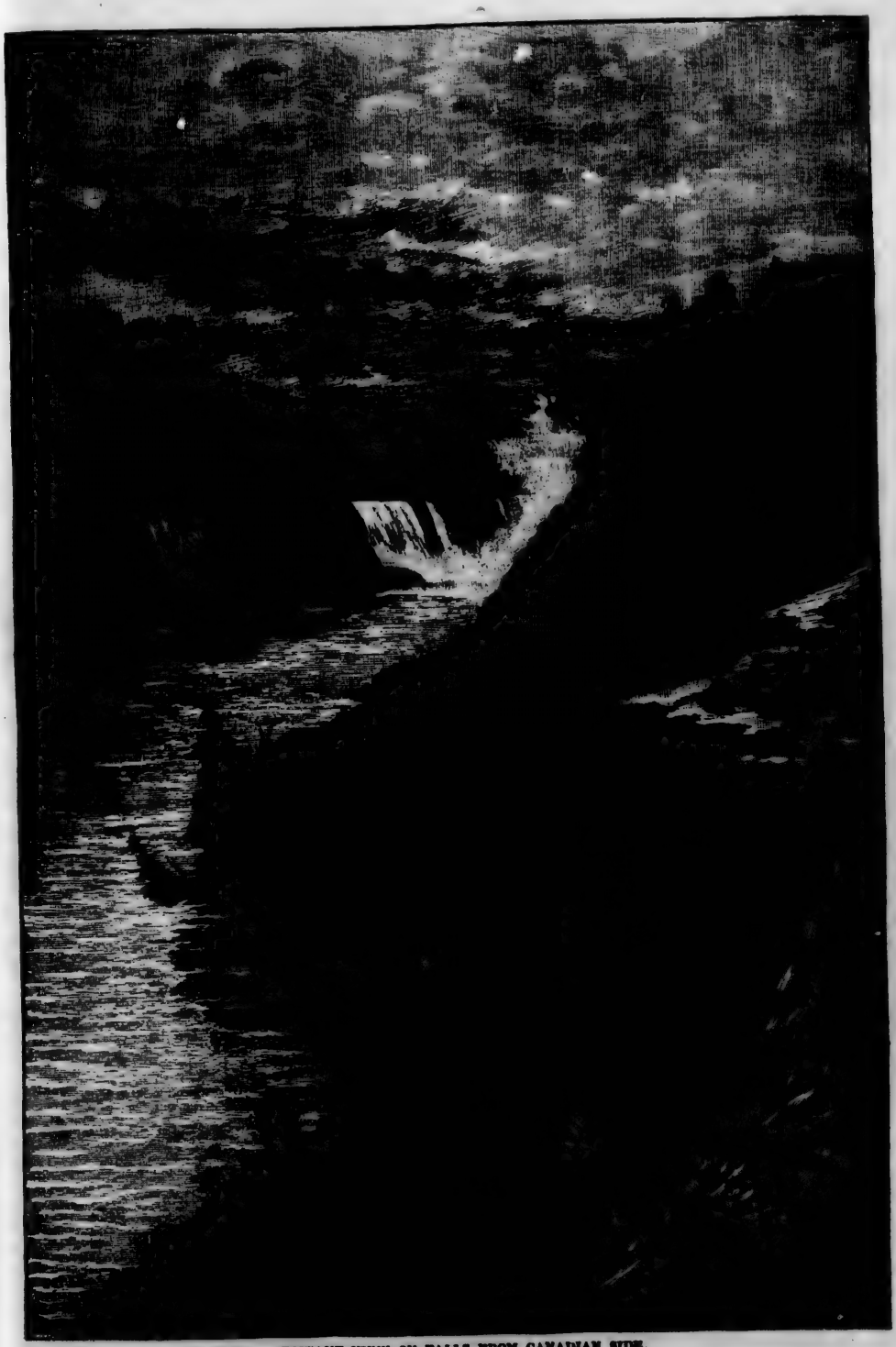
We began by collecting in Goat Island shells of the genera *Unio*, *Cyclas*, *Melania*, *Valvata*, *Limnea*, *Planorbis* and *Helix*, all of recent species, in the superficial deposit. They form regular beds, and numerous individuals of the *Unio* and *Cyclas* have both their valves united. We then found the same formation exactly opposite to the Falls on the top of the cliff (at *d*, fig. 1) on the American side, where two river terraces, one twelve and the other twenty-four feet above the Niagara, have been cut in the modern deposits. In these we observed the same fossil shells as in Goat Island, and learned that the teeth and other remains of a mastadon, some of which were shown us, had been found thirteen feet below the surface of the soil. We were then taken by our guide to a spot further north, where similar gravel and sand with fluviatile shells occurred near the edge of the cliff overhanging the ravine resting on the solid limestone. It was about half a mile below the principal Fall, and extended at some points 300 yards inland, but no farther, for it was then bounded by the bank of more ancient drift (*f*. fig. 1). This deposit precisely occupies the place which the ancient bed and alluvial plain of the Niagara would naturally have filled, if the river once extended farther northwards at a level sufficiently high to

FIGURE 1.



SECTION AT NIAGARA FALLS.

L. Limestone 80 feet thick.
S. Shale 80 feet thick.
d. Fresh-water strata on Goat Island above 80 feet thick.
d'. Same formation on the American side, containing bones of mastadon.
e. Ledge of bare limestone on the Canada side.
f. Ancient drift.



DISTANT VIEW OF FALLS FROM CANADIAN SIDE.

over the greater part of Goat Island. At that period the ravine could not have existed, and there must have been a barrier, several miles lower down, at or near the Whirlpool.

North. FIGURE 2. South.

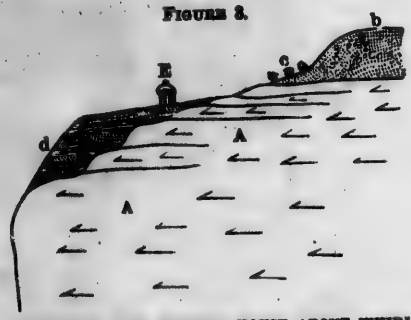
SECTION OF GOAT ISLAND FROM NORTH TO SOUTH 2,800 FEET IN LENGTH.

A. Massive compact portion of the Niagara limestone.
B. Upper thin bedded portion of the Niagara limestone strata, slightly inclined to the south.
c. Horizontal fresh-water beds of gravel, sand and loam, with shells.
D, E. Present surface of the river Niagara at the Rapids.

The supposed original channel, through which the waters flowed from Lake Erie to Queenstown or Lewiston, was excavated chiefly, but not entirely, in the superficial drift, and the old river banks cut in this drift are still to be seen facing each other, on both sides of the ravine, for many miles below the Falls. A section of Goat Island from south to north, or parallel to the course of the Niagara (fig. 2), shows that the limestone (*B*) had been greatly denuded before the fluviatile beds (*c*) were accumulated, and consequently when the Falls were several miles below their present site. From this fact I infer that the slope of the river at the Rapids was principally due to the original shape of the old channel, and not as some have conjectured to modern erosions on the approach of the Falls to the spot.

The observations made in 1841 induced me in the following year to re-examine diligently both sides of the river from the Falls to Lewiston and Queenstown, to ascertain if any other patches of the ancient river bed had escaped destruction. Accordingly, following first the edge of the cliffs on the eastern bank, I discovered, with no small delight at the summer house (*E*, fig. 3) above the Whirlpool, a bed of stratified sand and gravel, forty feet thick, containing fluviatile shells in abundance. Fortunately a few yards from the summer house a pit had been recently dug for the cellar of a new house, to the depth of nine feet in the shelly sand, in which I found shells of the genera *Unio*, *Cyclas*, *Melania*, *Melix* and *Pupa*, not only identical in species with those which occur in a fresh state in the bed of the Niagara, near the ferry, but corresponding also in the proportionate number of individuals

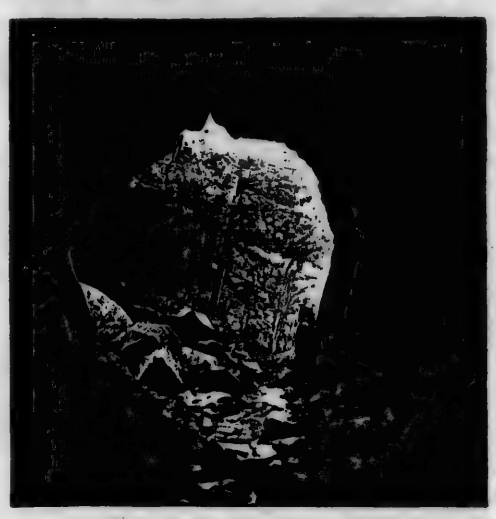
FIGURE 3.



SECTION AT THE SUMMER HOUSE ABOVE WHIRLPOOL, EAST BANK OF NIAGARA.

A. Thick bedded limestone, same as at Falls.
b. Ancient drift.
c. Boulders at base of steep bank formed by drift.
d. Fresh-water strata, 40 feet thick.
E. Summer house.

belonging to each species, that of *Cyclas similis*, for example, being the most numerous. The same year I found also a remnant of the old river bed on the opposite or Canadian side of the river, about a mile and a half above the Whirlpool, or two miles and a half below the Falls. These facts appear conclusive as to the former extension of a more elevated valley, four miles at least below the Falls; and at this point the old river bed must have been so high as to be capable of holding back the waters which covered all the patches of fluviatile sand and gravel, including that of Goat Island. As the tableland or limestone platform rises gently to the north, and is highest near Queenstown, there is no reason to suppose that there was a greater fall in the Niagara when it flowed at its higher level than now between Lake Erie and the Falls; and according to this view, the old channel might well have furnished the required barrier.



THE DEVIL'S HOLE.

I have stated that on the left, or Canadian bank of the Niagara, below the Falls, I succeeded in detecting sand with freshwater shells at one point only, near the mouth of the muddy river. The ledge of limestone on this side is usually laid bare, or only covered by vegetable mould (as at *e*, fig. 1), until we arrive at the boulder clay (*f*, fig. 1), which is sometimes within a few yards of the top of the precipice, and sometimes again retires eighty yards or more from it, being from twenty to fifty feet in height.

* * * * * *

There is also a notch or indentation, called the "Devil's Hole," on the right or eastern side of the Niagara, half a mile below the Whirlpool, which deserves notice, for there, I think, there are signs of the Great Cataract having been once situated. A small streamlet, called the "Bloody Run," from a battle fought there with the Indians, joins the Niagara at this place, and has hollowed out a lateral chasm. Ascending the great ravine, we here see, facing us, a projecting cliff of limestone, which stands out forty feet beyond the general range of the river cliff below, and has its flat summit bare and without soil, just as if it had once formed the eastern side of the Great Fall.

A FIRST IMPRESSION.

DICKENS.

IN THE morning we arrived at Buffalo, and, being too near the Great Falls to wait patiently anywhere else, we set off by the train at nine o'clock to Niagara. It was a miserable day; chilly and raw; a damp mist falling; and the trees in that northern region quite bare and wintry. Whenever the train halted I listened for the roar; and was constantly straining my eyes in the direction where I knew the Falls must be, from seeing the river rolling on towards them; every moment expecting to behold the spray. Within a few minutes of our stopping, not before, I saw two great white clouds rising up slowly and majestically from the depths of the earth. That was all. At length we alighted; and then, for the first time, I heard the mighty rush of water, and felt the ground tremble underneath my feet. The bank is very steep, and was slippery with rain and half-melted ice. I hardly know how I got down, but I was soon at the bottom, and climbing, with two English officers who were crossing and had joined me, over some broken rocks, deafened by the noise, half blinded by the spray and wet to the skin. We were at the foot of the American Fall. I could see an immense torrent of water tearing headlong down from some great height, but had no idea of shape, or situation, or anything but vague immensity. When we were seated in the little ferry-boat, and were crossing the swollen river, immediately before both cataracts, I began to feel what it was: but I was in a manner stunned, and unable to comprehend the vastness of the scene. It was not until I came on Table Rock, and looked—Great Heaven, on what a fall of bright green water!—that it came upon me in its full might and majesty.

Then, when I felt how near to my Creator I was standing, the first effect, and the enduring one—instant and lasting—of the tremendous spectacle, was Peace. Peace of Mind, tranquillity, calm recollections of the Dead, great thoughts of Eternal Rest and Happiness: nothing of gloom or terror. Niagara was at once stamped upon my heart, an Image of Beauty; to remain there changeless and indelible, until its pulses cease to beat, for ever.

—AMERICAN NOTES.

FALL OF TABLE ROCK.

IN olden times Table Rock on the Canada side was a splendid crag from which the eye could take in at one glance the whole of the Falls. It was one of the most famous points about Niagara. Its forms and dimensions were very large, but have been changed to their present appearance through frequent and violent disruptions. The overhanging table fell in 1850. Emerson had been on it only the day before. Fortunately it fell at noon when few people were out of doors, and at the moment no one was on the rock but the driver of an omnibus who had taken out his horses to feed them and was washing his vehicle on the edge of the cliff. He heard the warning crash and felt the motion of the falling rock just in time to escape. The vehicle which he had been cleansing fell into the abyss and no trace of it could afterwards be seen. The huge mass of rock which fell was over two hundred feet long, sixty feet wide and one hundred feet deep where it separated from the bank. Now all that is left of the far-famed Table Rock is a narrow ledge, bordering the bank where it juts and close to the Horseshoe Fall, but from it the grandest and most comprehensive view of the wide sweep of the Cataract and the Rapids above are obtained.

PILGRIMAGE UNDER THE FALL.

HARRIET MARTINEAU.

THE second time I visited Niagara I accomplished the feat of going behind the Fall.

We had a stout negro for a guide. He took me by the hand and led me through the spray. I presently found the method of keeping myself at my ease. It was to hold down the brim of my hat so as to protect my eyes from the dashing waters, and to keep my mouth shut. With these precautions I could breathe and see freely in the midst of a tumult which would otherwise be enough to extinguish one's being. A hurricane blows up from the cauldron; a deluge drives at you from all parts; and the noise of both wind and waters reverberated from the cavern, is inconceivable. Our path was sometimes a wet ledge of rock, just broad enough to allow one person at a time to creep along; in other places we walked over heaps of fragments both slippery and unstable. If all had been dry and quiet I might probably have thought this path above the boiling basin dangerous, and have trembled to pass it; but amidst the hubbub of gusts and floods, it appeared so firm a footing that I had no fear of slipping into the cauldron. From the moment that I perceived that we were actually behind the cataract and not in a mere cloud of spray, the enjoyment was intense. I not only saw the watery curtain before me like the tempest driven snow, but by momentary glances could see the crystal roof of this most wonderful of nature's palaces. The precise point where the flood quitted the rock was marked by a gush of silvery light, which of course was brighter where the waters were shooting forward, than below where they fell perpendicularly. There was light enough to see one another's features by, and even to give a shadow to the side of the projecting rock which bars our further progress. When we came to within a few paces of this projection, our guide by a motion of his hand forbade my advancing further. But it was no time and place to be stopped by anything but the impossible. I made the guide press himself against the rock and crossed between him and the cauldron, and easily gained my object, laying my hand on Termination Rock. Mrs. F. says we looked like three gliding ghosts when her anxious eye first caught our forms moving behind the cloud. She was glad enough to see us, for some one passing by had made her expect us at least two minutes before we appeared. Dripping at all points as we were, we scudded under the rocks and up the staircase to our dressing rooms, after which we wrote our names among those adventurers who had performed the same feat, and received a certificate of our having visited Termination Rock.

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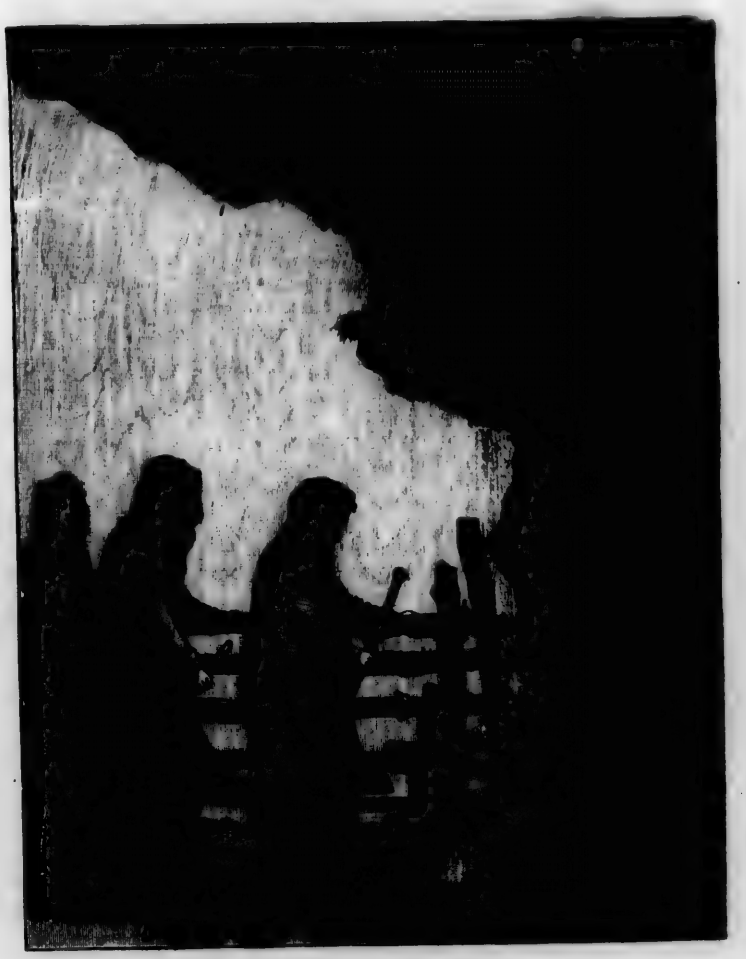
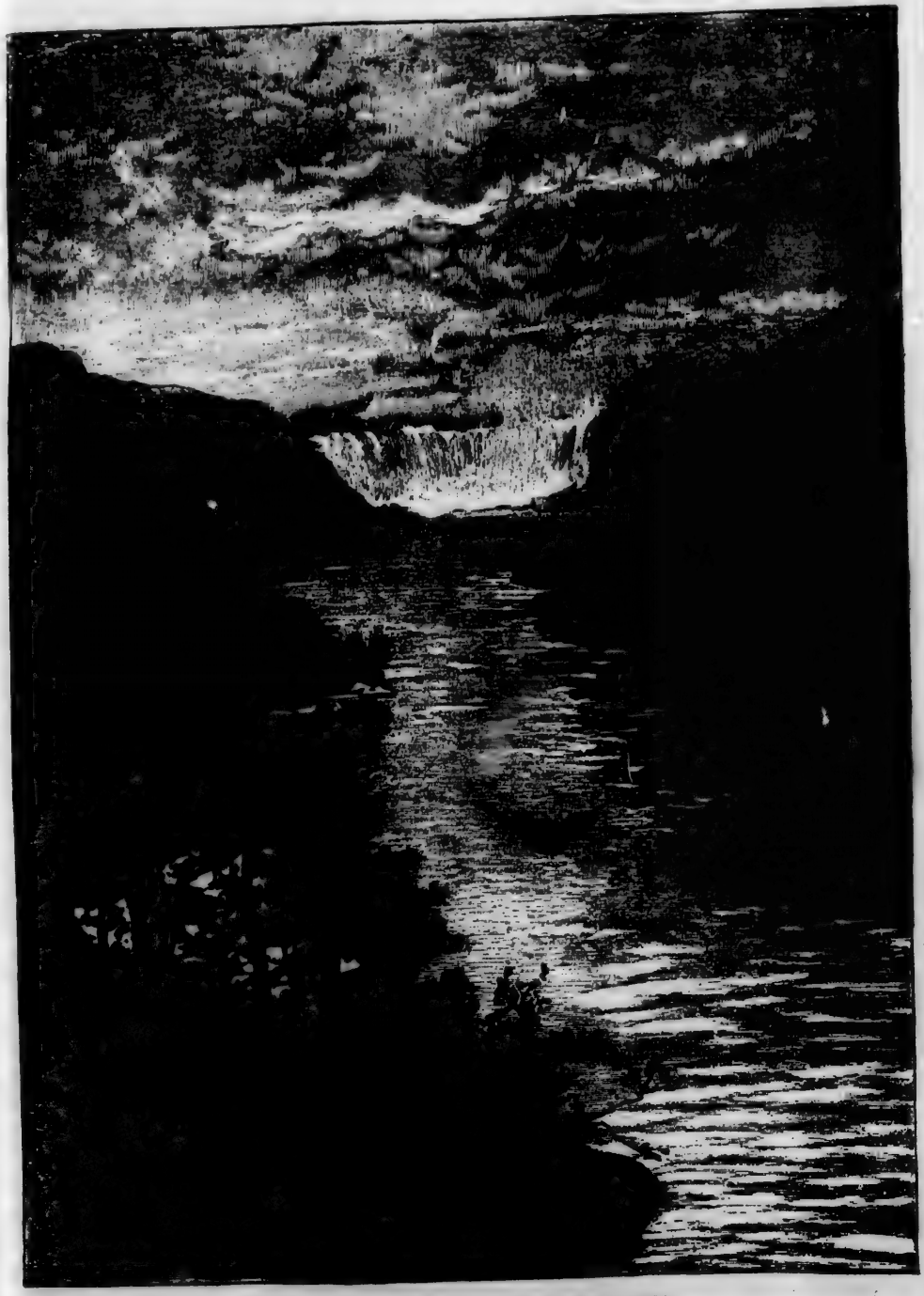


PILGRIMAGE UNDER THE FALL.

NIAGARA.

MRS. SIGOURNEY.

FLOW on forever, in thy glorious robe
Of terror and of beauty:—Yea, flow on
Unfathom'd and resistless.—God hath set
His rainbow on thy forehead: and the cloud
Mantled around thy feet.—And he doth give
Thy voice of thunder, power to speak of Him
Eternally,—bidding the lip of man
Keep silence,—and upon thy rocky altar pour
Incense of awe-struck praise.
Ah! who can dare
To lift the insect trump of earthly hope,
Or love, or sorrow,—'mid the peal sublime
Of thy tremendous hymn? Even Ocean shrinks
Back from thy brotherhood: and all his waves
Retire abash'd. For he doth sometimes seem
To sleep like a spent laborer,—and recall
His wearied billows from their vexing play
And lull them to a cradle calm:—but thou,
With everlasting, undecaying tide,
Doth rest not, night or day.—The morning stars,
When first they sang o'er young Creation's birth,
Heard thy deep anthem, and those wrecking fires
That wait the archangel's signal to dissolve
This solid earth, shall find Jehovah's name
Graven, as with a thousand diamond spears
On thine unending volume.
Every leaf
That lifts itself within thy wide domain,
Doth gather greenness from thy living spray,
Yet trembles at the baptism.—Lo! yon birds
Do boldly venture near, and bathe their wing
Amid thy mist and foam. 'Tis meet for them
To touch thy garment's hem, and lightly stir
The snowy leaflets of thy vapor wreath,
For they may sport unharmed amid the cloud,
Or listen at the echoing gate of heaven,
Without reproof. But as for us, it seems
Scarce lawful, with our broken tones, to speak
Familiarly of thee.—Methinks, to tint
Thy glorious features with our pencil's potst,
Or woo thee to the tablet of a song
Were profanation.
Thou dost make the soul
A wondering witness of thy majesty,
But as it presses with delirious joy
To pierce thy vestibule, doth chain its step,
And tame its rapture, with the humbling view
Of its own nothingness, bidding it stand
In the dread presence of the Invisible,
As if to answer to its God, through thee.



NIAGARA FALLS ABOVE THE WHIRLPOOL RAPIDS.

INDIAN LEGENDS.

The Victim of the Falls.

FEW are the legends connected with Niagara, and those which do exist are tragic and solemn in their character. The early Indians looked with too much awe upon this mighty cataract to connect it in their imagination with any thing but the terrible. Its depths to them contained the Great Spirit of the Falls, a Manitou of Evil whom they were bound to propitiate with offerings of pipes, wampums, and trinkets.

This Spirit, according to tradition, exacted annually two human victims to satisfy his cravings for earthly blood. In addition to this the Indians used every summer to sacrifice the fairest maiden of their tribe, sending her to glide over the dreaded brink in a white canoe, filled with choicest fruits and flowers. The accompanying engraving, taken from a picture by Chas. Volkmar, illustrates this rite. It is also embodied in another form in the charming poem given below and written by George Houghton.

Niagara.

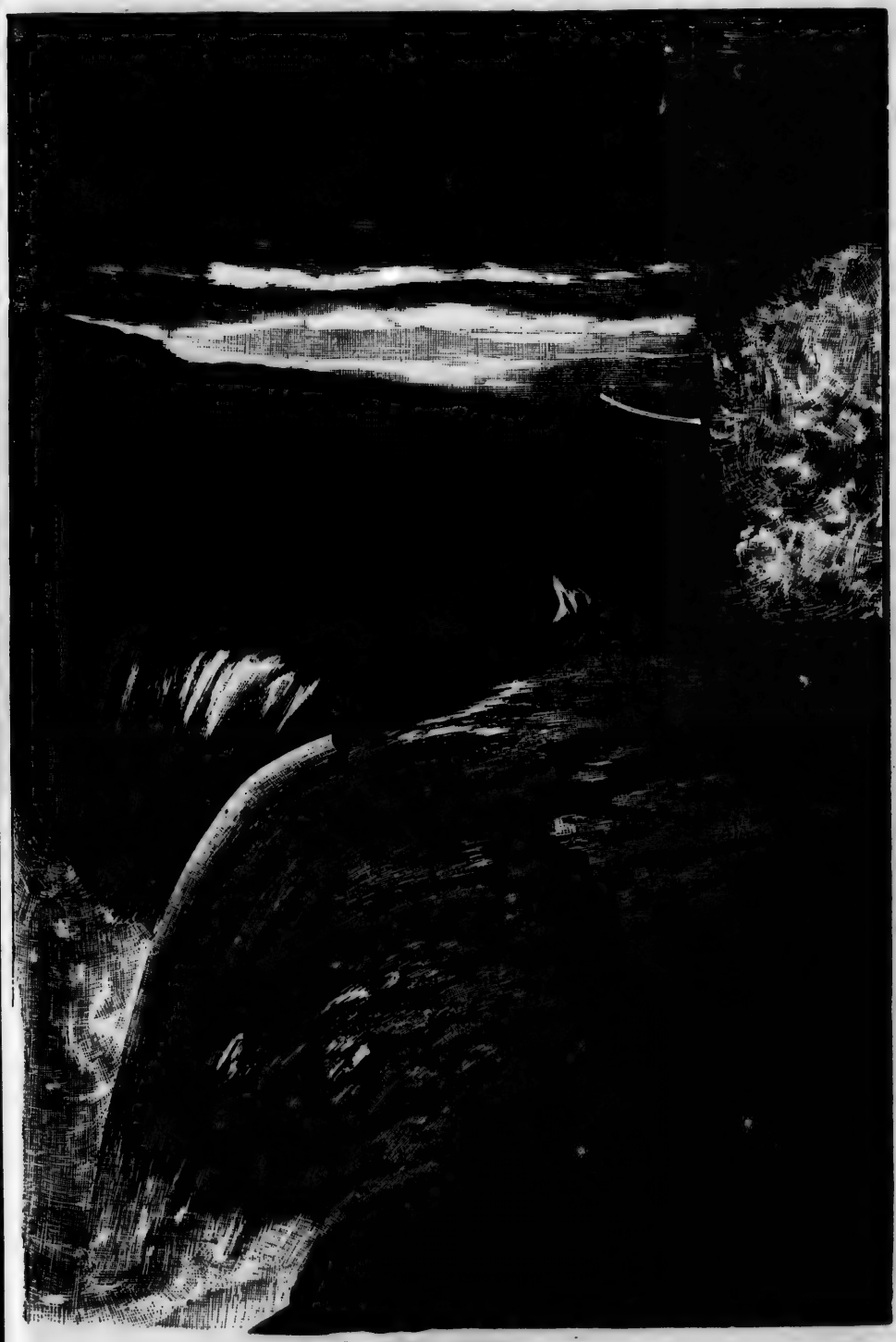
"Here, when the world was wreathed with the scarlet and gold of October,
Here, from far-scattered camps, came the moccasined tribes of the red-man,
Left in their tents their bows, forgot their brawls and dissensions,
Ringed thee with peaceful fires, and over their calumets pondered;

"Chose from their fairest virgins the fairest and purest among them,
Hollowed a birchen canoe, and fashioned a seat for the virgin,
Clothed her in white, and sent her adrift to whirl to thy bosom,
Saying: 'Receive this our vow, Niagara, Father of Waters!'

"Lo! drifting toward us approaches a curious tangle of something!
White and untillered it floats, bewitching the sight, and appearing
Like to a birchen canoe, a virgin crouched pallid within it,
Hastening with martyr zeal to solve the unriddled hereafter!

"Slower and smoother her flight, until on the precipice pausing,
Just for the space of a breath the dread of the change seems to thrill her;
Crossing herself, and seeming to shudder, she lifts eyes to heaven,—
Sudden a mist upwhirls—I see not—but know all is over."

— GEORGE HOUGHTON.



INDIAN LEGEND.

MY VISIT TO NIAGARA.

NATHANIEL HAWTHORNE.

NEVER did a pilgrim approach Niagara with deeper enthusiasm than mine. I had lingered away from it, and wandered to other scenes, because my treasury of anticipated enjoyments, comprising all the wonders of the world, had nothing else so magnificent, and I was loth to exchange the pleasures of hope for those of memory so soon. At length the day came. The stage coach, with a Frenchman and myself on the back seat, had already left Lewiston, and in less than an hour would set us down in Manchester. I began to listen for the roar of the cataract, and trembled with a sensation like dread, as the moment drew nigh when its voice of ages must roll for the first time on my ear. The French gentleman stretched himself from the window, and expressed loud admiration, while, by a sudden impulse I threw myself back and closed my eyes. When the scene shut in, I was glad to think, that for me the whole burst of Niagara was yet in futurity. We rolled on, and entered the village of Manchester, bordering on the Falls.

I am quite ashamed of myself here. Not that I ran, like a madman to the Falls, and plunged into the thickest of the spray—never stopping to breathe, till breathing was impossible: not that I committed this or any other suitable extravagance. On the contrary, I alighted with perfect decency and composure, gave my cloak to the black waiter, pointed out my baggage, and inquired not the nearest way to the cataract, but about the dinner hour. The interval was spent in arranging my dress. Within the last fifteen minutes, my mind had grown strangely benumbed, and my spirits apathetic with a slight depression, not decided enough to be termed sadness. My enthusiasm was in a death-like slumber. Without aspiring to immortality as he did, I could have imitated that English traveler, who turned back from the point where he first heard the thunder of Niagara, after crossing the ocean to behold it. Many a Western trader, by the by, has performed a similar act of heroism with more heroic simplicity, deeming it no such wonderful feat to dine at the hotel and resume his route to Buffalo or Lewiston, while the cataract was roaring unseen.

Such has often been my apathy, when objects, long sought, and earnestly desired, were placed within my reach. After dinner—at which an unwonted and perverse epicurism detained me longer than usual—I lighted a cigar and paced the piazza, minutely attentive to the aspect and business of a very ordinary village. Finally with reluctant step, and the feeling of an intruder, I walked towards Goat Island. At the toll-house there were further excuses for delaying the inevitable moment. My signature was required in a huge ledger, containing similar records innumerable, many of which I read. The skin of a great sturgeon and other fishes, beasts and reptiles; a collection of minerals, such as lie in heaps near the Falls; some Indian moccasins, and other trifles, made of deer skin, and embroidered with beads; several news-

papers from Montreal, New York and Boston; all attracted me in turn. Out of a number of twisted sticks, the manufacture of a Tuscarora Indian, I selected one of curled maple, curiously convoluted, and adorned with the carved images of a snake and a fish. Using this as my pilgrim's staff, I crossed the bridge. Above and below me were the rapids, a river of impetuous snow, with here and there a dark rock amid its whiteness, resisting all the physical fury, as any cold spirit did the moral influences of the scene. On reaching Goat Island, which separates the two great segments of the Falls, I chose the right-hand path, and followed it to the edge of the American cascade, there, while the falling sheet was yet invisible, I saw the vapor that never vanishes and the Eternal Rainbow of Niagara.

THE FIRST BRIDGE TO GOAT ISLAND ACROSS THE AMERICAN RAPIDS.
(*From painting of C. Cubby in 1831.*)

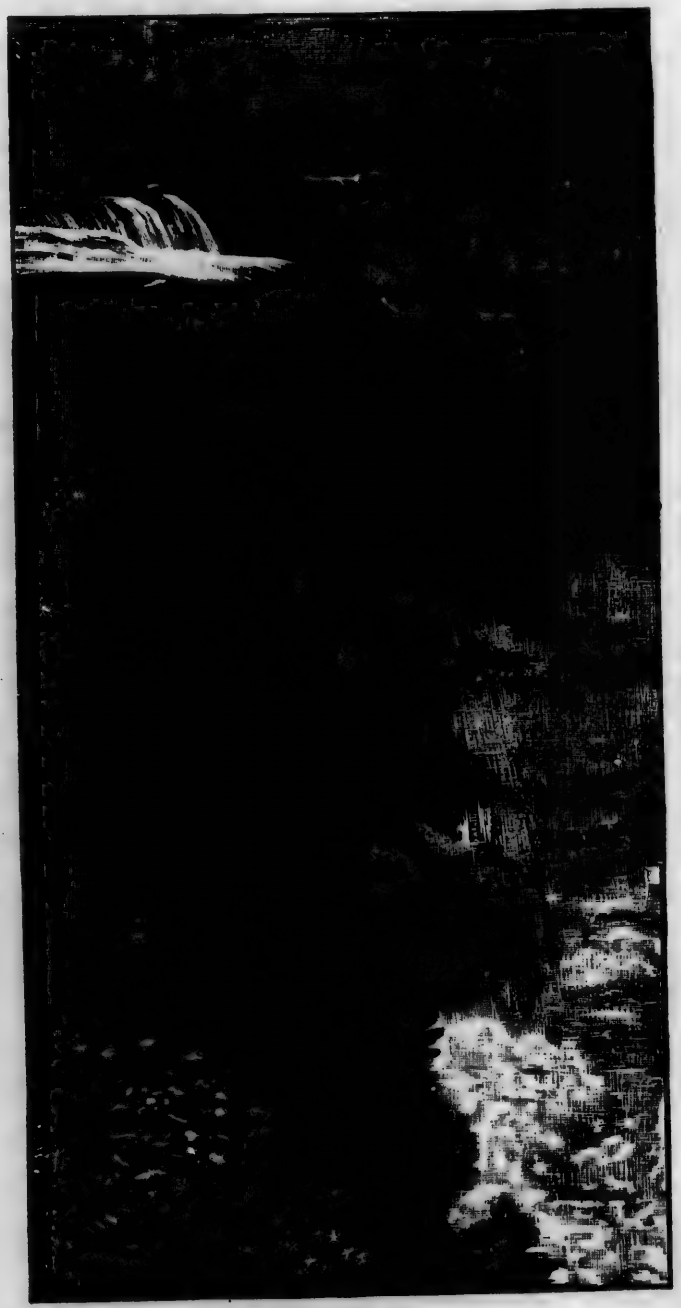
It was an afternoon of glorious sunshine, without a cloud, save those of the cataracts. I gained an insulated rock, and beheld a broad sheet of brilliant and unbroken foam, not shooting in a curved line from the top of the precipice, but falling headlong down from height to depth. A narrow stream diverged from the main branch, and hurried over the crag by a channel of its own, leaving a little pine-clad island and a streak of precipice between itself and the larger sheet. Below arose the mist, on which was painted a dazzling sunbow, with two concentric shadows—one, almost as perfect as the original brightness; and the other drawn faintly round the broken edge of the cloud.

Still I had not half seen Niagara. Following the verge of the island, the

path led me to the Horseshoe, where the real, broad St. Lawrence, rushing along on a level with its banks, pours its whole breadth over a concave line of precipice, and thence pursues its course between lofty crags towards Ontario. A sort of bridge, two or three feet wide, stretches out along the edge of the descending sheet, and hangs upon the rising mist, as if that were the foundation of the frail structure. Here I stationed myself in the blast of wind, which the rushing river bore along with it. The bridge was tremulous beneath me, and marked the tremor of the solid earth. I looked along the whitening rapids, and endeavored to distinguish a mass of water far above the Falls, to follow it to their verge, and go down with it, in fancy, to the abyss of clouds and storm. Casting my eye across the river, and every side, I took in the scene at a glance, and tried to comprehend it in one vast idea. After an hour thus spent I left the bridge, and by a stair-case, winding almost interminably round a post, descended to the base of the precipice. From that point my path lay down slippery stones, and among great fragments of the cliff, to the edge of the cataract, where the wind at once enveloped me in spray, and perhaps dashed the rainbow round me. Were my long desires fulfilled? And had I seen Niagara? Oh, that I had never heard of Niagara till I beheld it! Blessed were the wanderers of old who heard its deep roar, sounding through the woods, as the summons to an unknown wonder, and approached its awful brink in all the freshness of native feeling. Had its own mysterious voice been the first to warn me of its existence, then, indeed, I might have knelt down and worshipped. But I had come thither, haunted with a vision of foam and fury, and dizzy cliffs, and an ocean tumbling down out of the sky—a scene, in short, which nature had too much good taste and calm simplicity to realise. My mind had struggled to adapt these false conceptions to the reality, and finding the effort vain, a wretched sense of disappointment weighed me down. I climbed the precipice, and threw myself on the earth—feeling that I was unworthy to look at the Great Falls, and careless about beholding them again.

All that night, as there has been and will be for ages past and to come, a rushing sound was heard, as if a great tempest were sweeping through the air. It mingled with my dreams, and made them full of storm and whirlwind. Whenever I awoke, and heard this dread sound in the air, and the windows rattling as with a mighty blast, I could not rest again, till looking forth, I saw how bright the stars were, and that every leaf in the garden was motionless. Never was a summer night more calm to the eye, nor a gale of autumn louder to the ear. The rushing sound as it proceeds from the rapids, and the rattling of the casements is but an effect of the vibration of the whole house, shaken by the jar of the cataract. The noise of the rapids draws the attention from the true voice of Niagara which is a dull muffled thunder resounding between the cliffs. I spent a wakeful hour at midnight, in distinguishing its reverberation and rejoiced to find that my former awe and enthusiasm were reviving.

Gradually, and after much contemplation, I came to know by my own feelings, that Niagara is indeed a wonder of the world, and not the less wonderful because time and thought must be employed in comprehending it.



PROSPECT POINT.

AMERICAN RAPIDS ABOVE THE FALLS.

N. P. WILLIS.

THE Rapids are far from being the least interesting feature of Niagara. There is a violence and a power in their foaming career, which is seen in no phenomenon of the same class. Standing on the bridge which connects Goat Island with the Main, and looking up towards Lake Erie, the leaping crests of the Rapids form the horizon, and it seems like a battle charge of tempestuous waves, animated and infuriated against the sky.

No one who has not seen this spectacle of turbulent grandeur can conceive with what force the swift and overwhelming waters are flung upwards. The rocks, whose soaring points show above the surface, seem tormented with some supernatural agony, and fling off the wild and hurried waters, as if with the force of a giant's arm. Nearer the plunge of the Fall, the Rapids become still more agitated; and it is almost impossible for the spectator to rid himself of the idea, that they are conscious of the abyss to which they are hurrying, and struggle back in the very extremity of horror.

This propensity to invest Niagara with a soul and human feelings is a common effect upon the minds of visitors, in every part of its wonderful phenomena. The torture of the Rapids, the clinging curves with which they embrace the small rocky islands that live amid the surge, the sudden calmness at the brow of the cataract, and the infernal writhe and whiteness with which they reappear, powerless from the depths of the abyss, all seem, to the excited imagination of the gazer, like the natural effects of impending ruin, desperate resolution, and fearful agony, on the minds and frames of mortals.

During the Canadian war of 1814, General Putnam, the famous partisan soldier, made the first descent upon Goat Island. A wager had been laid, that no man in the army would dare to cross the Rapids from the American side; and with the personal daring for which he was remarkable, above all the men of that trying period, he undertook the feat. Selecting the four stoutest and most resolute men in his corps, he embarked in a batteau just above the island, and with a rope attached to the ring-bolt, which was held by as many muscular fellows on the shore, he succeeded by desperate rowing in reaching his mark. He most easily towed back, and the feat has since been rendered unnecessary by the construction of the bridge from the main land to Goat Island.

THE UPPER RAPIDS.

GEORGE HOUGHTON.

STILL, with the wonder of boyhood, I follow the race of the Rapids,
Sirens that dance, and allure to destruction,—now lurking in shadows,
Skirting the level stillness of pools and the treacherous shallows,
Smiling and dimple-mouthed, coquetting,—now modest, now forward;

Tenderly chanting, and such the thrall of the weird incantation,
Thirst it awakes in each listener's soul, a feverish longing,
Thoughts all absorbant, a torment that stings and ever increases,
Burning ambition to push bare-breast to thy perilous bosom.

Thus, in some midnight obscure, bent down by the storm of temptation
(So hath the wind, in the beechen wood, confided the story),
Pine-trees, thrusting their way and trampling down one another,
Curious, lean and listen, replying in sobs and in whispers;

AMERICAN RAPIDS ABOVE THE FALLS.

Till of the secret possessed, which brings dire blight to the hearer,
(So hath the wind, in the beechen wood, confided the story),
Faltering, they stagger brinkward,—clutch at the roots of the grasses.
Cry,—a pitiful cry of remorse,—and plunge down in the darkness.

Art thou all-merciless then,—a fiend, ever fierce for new victims?
Was then the red-man right (as yet it liveth in legend),
That, ere each twelvemonth circles, still to thy shrine is allotted
Blood of one human heart, as sacrifice due and demanded?

Butterflies have I followed, that leaving the red-top and clover,
Thinking a wind-harp thy voice, thy froth the fresh whiteness of daisies,
Ventured too close, grew giddy, and catching cold drops on their pinions,
Balanced—but vainly,—and falling, their scarlet was blotted forever.

THE MAID OF THE MIST.

GEO. W. HOLLEY.

IN the year 1854, a small steamer was built to run up to the Falls. She was named "The Maid of the Mist," and, as she took passengers from both sides of the river, many thousands of persons made the exciting and impressive voyage. To many persons there was a fascination about it that induced them to make the trip every time they had an opportunity to do so. Owing to some change in her appointments which confined her to the Canadian shore for the reception of passengers, she became unprofitable. Her owner, having decided to leave the neighborhood, wished to sell her as she lay at her dock. This he could not do, but he received an offer of something more than half of her cost if he would deliver her at Niagara, opposite the fort. This he decided to do, after consultation with Robinson, who had acted as her captain and pilot on her trips below the Falls. Mr. Robinson agreed to act as pilot for the fearful voyage, and the engineer, Mr. Jones, consented to go with him. A courageous machinist, Mr. McIntyre, volunteered to share the risk with them.

About three o'clock in the afternoon of June 15, 1861, the engineer took his place in the hold, and, knowing that their flitting would be short at the best, and might be only the preface to swift destruction, set his steam valve at the proper gauge, and awaited—not without anxiety—the tinkling signal that should start them on their flying voyage. McIntyre joined Robinson at the wheel on the upper deck. Self-possessed, and with the calmness which results from undoubting courage and confidence, yet with the humility which recognizes all possibilities, with downcast eyes and firm hands, Robinson took his place at the wheel and pulled the starting bell. With a shriek from her whistle and a white puff from her escape-pipe, the boat ran up the eddy a short distance, then swung round to the right, cleared the smooth water, and shot like an arrow into the rapid under the bridge. Robinson intended to take the inside curve of the rapid, but a fierce cross-current carried him to the outer curve, and when a third of the way down it a jet of water struck against her rudder, a column dashed up under her starboard side, heeled her over, carried away her smoke-stack, started her overhang on that side, threw Robinson flat on his back, and thrust McIntyre against her starboard wheel-house with such force as to break it through. Every eye was fixed, every tongue was silent, and every looker-on breathed freer as she emerged from the fearful baptism, shook her wounded sides, slid into the Whirlpool, and for a moment rode again on an even keel. Robinson rose at once, seized the helm, and set her to the right of the large pot in the pool, then turned her directly through the neck of it. Thence, after receiving another drenching from its combing waves, she dashed on without further accident, to the quiet bosom of the river below Lewiston. Thus was accomplished one of the most remarkable and perilous voyages ever made by men.

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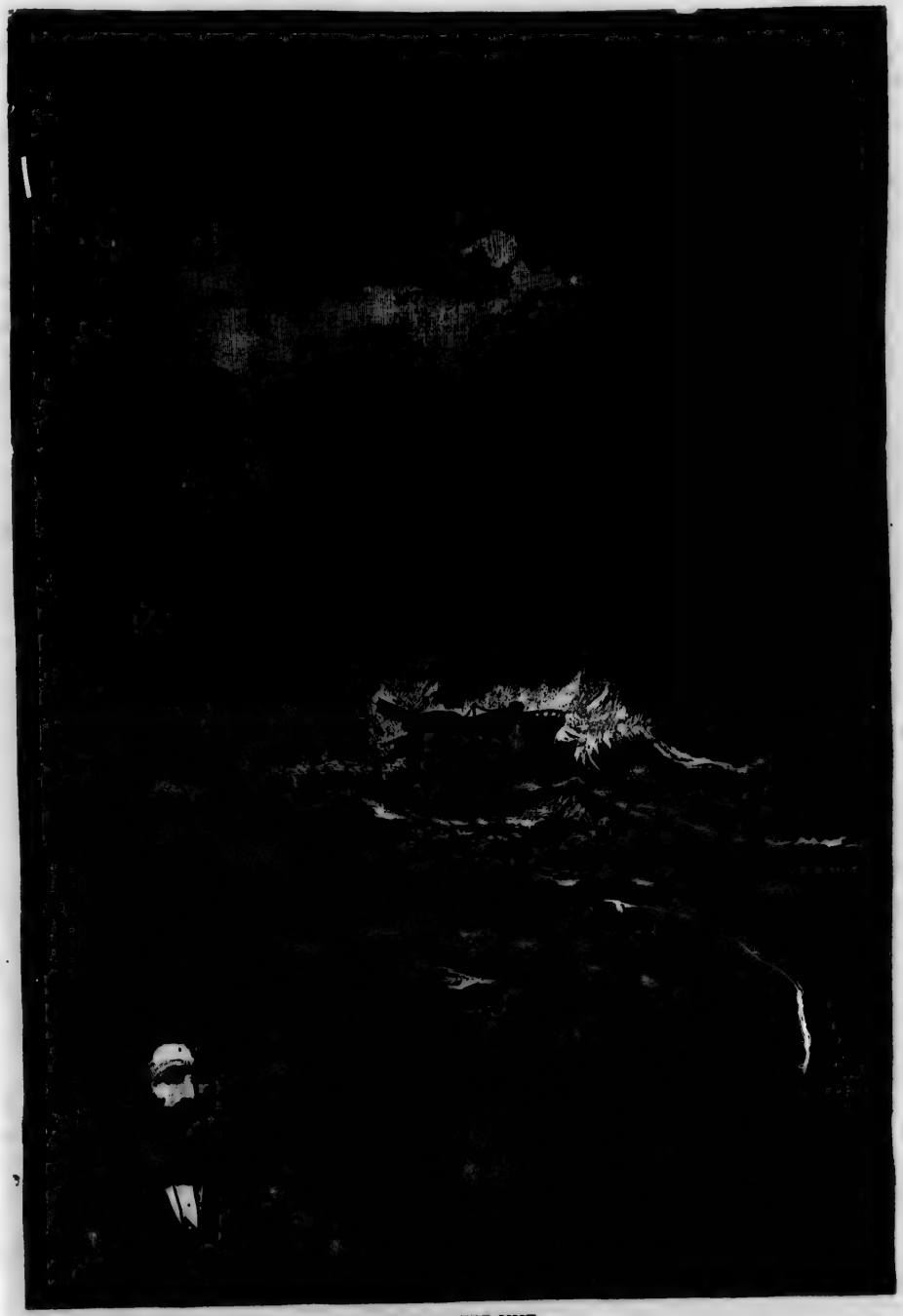


MAID OF THE MIST.

SENSATIONS.

CHARLES MACKEY.

NIAGARA bewilders the senses of the too passionate admirers of its beauty. Many are the tragical stories which are recounted of the fair girls, the young brides, and the poetic souls who have thrown themselves into the torrent for the speechless love they bore it, and floated into death on its terrific but beautiful bosom. * * * * It is a long time before the finite senses of any human being can grasp the full glory of this spectacle. I cannot say that I ever reached a satisfactory comprehension of it. I only know that I gazed sorrowfully, and yet glad, and that I understood thoroughly what was meant by the ancient phrase of "spell-bound;" that I knew what fascination, witchcraft, and glamour were; and that I made full allowances for the madness of any poor, weak, excited human creature, who, in a moment of impulse or frenzy, had thrown himself or herself headlong into that too beautiful and too entrancing abyss.

When the first sensations of mingled awe and delight have been somewhat dulled by familiarity with the momentous majesty so suggestive of infinite power, and so like an emblem of eternity—though impossible for man's art to picture it under such a symbol—the eye takes pleasure in looking at the minutiæ of the flood. The deep slaty-green color of the river, curdled by the impetus of the Fall into masses of exquisite whiteness, is the first peculiarity that excites attention. Then the shapes assumed by the rushing waters—shapes continually varying as each separate pulsation of the Rapids above produces a new embodiment in the descending stream—charms the eye with fresh wonder. Sometimes an avalanche of water, striking on a partially hidden shelf or rock half-way down the precipice, makes a globular and mound-like surge of spray; and immediately afterwards, a similar down flow, beating on the very same point, is thrown upwards almost to the level of the Upper Niagara, in one long, white, perpendicular column. Gently, yet majestically, it reaches the lower level by its own independent impetus, without being beholden to the gravity of the sympathetic stream, from which it has been so rudely dissevered. And then the rainbows! No pen can do justice to their number and their loveliness. No simile but the exquisite one of Byron at the Italian waterfall—which compared with Niagara is but a blade of grass to some oaken monarch of the woods—can adequately render the idea of any spectator who has a soul for natural beauty as he gazes on the spectacle of such an Iris as it was my good fortune to behold—

"Love watching madness with unalterable mein!"

But the sensations of one man, are not the sensations of another. To one, Niagara breathes turbulence and unrest; to another it whispers peace and hope. To one it speaks of eternity; to another of time. To the geologist it opens up the vista of millions of years; while to him who knows nothing or cares nothing for the marvels of that science, it but sings in the wilderness a new song by a juvenile orator only six thousand years old. But to me, if I can epitomise my feelings in four words, Niagara spoke joy, peace, order, and eternity.

HERMIT'S CASCADE.

BETWIXT Goat Island and the first Sister Island Bridge is the Hermit's Cascade, a lovely sheet of water which derives its name from its having been the favorite resort of Francis Abbot, known as the young Hermit of the Falls.

The story of Francis Abbot is as romantic as the scenery which bears his name. The son of an English clergyman, he visited Niagara for the first time in the summer of 1829. So deeply was he impressed by the sublimity of the Falls that his original intention of remaining one week was extended to six, that he might examine them more accurately. At the end of that period, still unable to tear himself away, he took up his residence in an old house upon the island of the Three Sisters. This he rendered as comfortable as his circumstances would admit, or as was necessary for one who, from the first, had studiously shunned the society of mankind.

Who the young stranger was had been matter for much conjecture. His features were comely and attractive, and his bearing was quiet, studious and gentlemanly. As a large portfolio, books, violin, flute and guitar were among his possessions, many supposed him to be an artist. This idea was confirmed by the rare skill with which he performed upon these various instruments. But though music appeared to be his favorite pursuit, he was also learned in the languages, sciences, and art of drawing. He also wrote a great deal, and a singularity was that all his compositions were written in Latin, and destroyed as soon as they were finished.

For twenty months this eccentric being lived in a deserted house upon one of the Three Sisters Islands a life of almost total seclusion; then as the family to whom it belonged returned, he quietly withdrew, removing to a place near Prospect Point. Here he lived for a short time such a life as Thoreau would have loved. The roof that sheltered him was the work of his own hands. Whatever food he required outside of his daily diet of bread and milk he prepared himself. He seldom and sparingly admitted the intercourse of man, and this evidently not from a feeling of moroseness or misanthropy, as he was uniformly kind and gentle with all, but influenced by a sentiment which made him love not mankind less but nature more.

As with the American Thoreau, a free communion with the spirits of the waters and the woods was the absorbing delight of his existence. It was his habit to watch the smallest animals so as to detect their secrets. Birds seemed to recognize him instinctively, and came to him freely to receive food from his hands. On Goat Island at all hours of the day and night he could be seen wandering through unfrequented paths to watch the mighty Niagara from every point of view. Neither the heat of summer nor the piercing cold of winter stayed his feet from going where the cataract

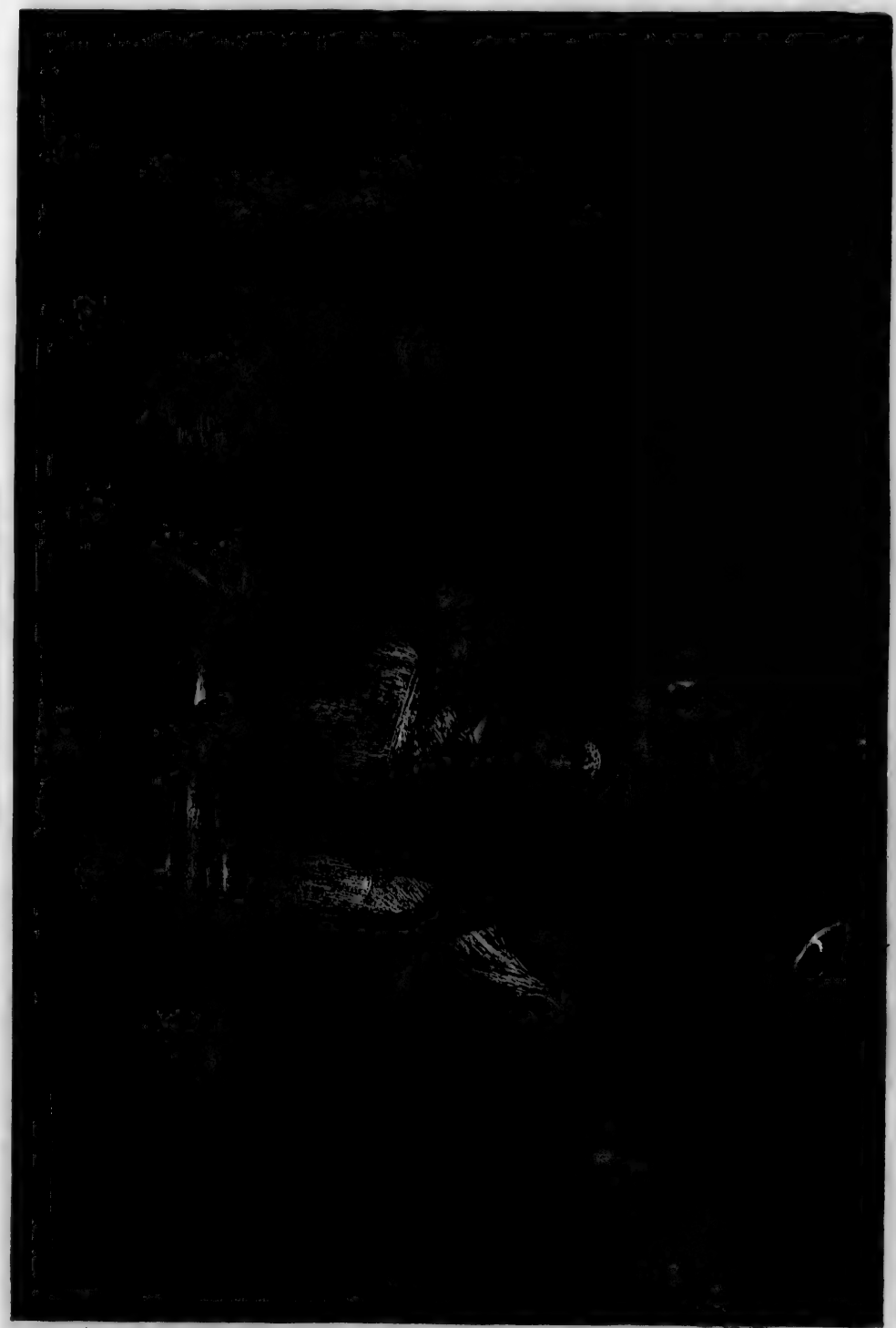
"In deafening sweep
Girdled with rainbows, thunders down the steep."

He had worn a beaten path from his cottage to Terrapin Bridge. At that time a single shaft of timber eight inches square, jutted out ten feet from the bridge over the precipice. On this it was his pleasure to sit sometimes carelessly on the extreme edge, or grasping it with his hands suspend himself over the fathomless abyss. To this point he would pass or repass at all hours of the night, apparently undisturbed by the slightest tremor of nerve, certainly without any hesitancy of step.

A bold swimmer and passionately fond of bathing, he had scooped out and arranged for himself a secluded and romantic bath, between Moss and Iris islands. Here it was his habit to bathe daily, even after the severity of the weather had rendered it imprudent for the most robust to venture into the water. He, however, escaped with impunity until one bright and chilly day in June, 1831, when having gone from his accustomed bathing place to a spot below the principal Fall, an attack of cramp must have seized the unfortunate man, as he never emerged from the waters alive.

A man employed at the Ferry had seen him go into the water, and as his clothes, after some time were still lying upon the bank, inquiry was made and a search instituted. His body was found below the Whirlpool. Tenderly the finders bore the weary dead back to his desolate cottage. Here they found his faithful dog guarding the door, and the kitten, which he had petted, watching by his pillow. The table was spread with a frugal meal which had been prepared against his return from his fatal bath. Of the books which lay beside the food, one was open as if for immediate use. A chair at the foot of the bed held an open music book and his violin, just as he had left them; the music his own bow had drawn, was evidently the last sound he had heard on earth except the thunder of the Falls.

What was the cause of the seclusion from society of this accomplished being will never be known. An examination of his room disclosed that he had destroyed all manuscripts leading to a discovery of his identity. Nothing further could be obtained than that he was a native of England, and his father a clergyman, who sent him remittances of money ample enough to insure his comfort. Thus at the age of twenty-eight years the Hermit of the Falls was buried by strangers in a strange land. But his enthusiasm for the scenery amid which he lived and died, has given him an immortality he would otherwise have failed to obtain. Through the centuries, the cascade that has been dedicated to him will recall his name and story to all who visit the Falls of Niagara.



THE DEAD HERMIT SURROUNDED BY FRIENDS.

CHARM OF NIAGARA.

ANTHONY TROLLOPE.

THE greatest charm of a mountain range is the wild feeling that there must be strange unknown worlds in those far off valleys beyond. And so here at Niagara, that converging rush of waters, may fall down at once into a hell of rivers for what the eye can see. It is glorious to watch them in their first curve over the rocks. They come green as a bank of emeralds, but with a fitful flying color, as though conscious that in one moment more they would be dashed into spray and rise into air pale as driven snow. The vapor rises high into the air, and is gathered there visible always as a permanent white cloud over the cataract; but the bulk of the spray which fills the lower hollow of that Horseshoe is like a tumult of snow. * * * * The bend of it rises ever and anon out of that cauldron below, but the cauldron itself will be invisible. It is ever so far down—far as your own imagination can sink it. But your eyes will rest full upon the chasm of waters. The shape you will be looking at is that of a horseshoe, but of a horseshoe miraculously deep from toe to heel, and the depth becomes greater as you watch it. That which at first was only great and beautiful becomes gigantic and sublime, till the mind is at a loss to find an epithet for its own use. To realize Niagara you must sit there till you see nothing else than that which you have come to see, you will hear nothing else, and think of nothing else. At length you will be at one with the tumbling river before you, you will find yourself among the waters as though you belonged to them. The cool liquid green will run through your veins, and the voice of the cataract will be the expression of your own heart. You will fall as the bright waters fall, rushing down into your new world with no hesitation, and no dismay; and you will rise again as the spray rises, bright, beautiful and pure. Then you will flow away in your course to the unconfined, distant and eternal ocean.

* * * * * * *

Of all the sights on this earth of ours which tourists travel to see—at least all of those which I have seen—I am inclined to give the palm to the Falls of Niagara. In the catalogue of such sights, I intend to include all buildings, pictures, statues and wonders of art made by men's hands, and also all beauties of nature prepared by the Creator for the delight of his creatures. This is a long word; but as far as my taste and judgment go, it is justified. I know no other one thing so beautiful, so glorious and so powerful. At Niagara there is the fall of waters alone. But that fall is more graceful than Giotto's tower, more noble than the Apollo. The peaks of the Alps are not so astounding in their solitude. The valleys of the Blue Mountains in Jamaica are less green. The finished glaze of life in Paris is less invariable; and the full tide of trade round the Bank of England is not so inexorably powerful.

BEHIND THE HORSESHOE FALL.

TYNDALL.

ON the first evening of my visit, I met, at the head of Biddle's Stair, the guide to the Cave of the Winds. He was in the prime of manhood—large, well built, firm and pleasant in mouth and eye. My interest in the scene stirred up his and made him communicative. Turning to a photograph, he described, by reference to it, a feat which he had accomplished some time previously, and which had brought him almost under the green water of the Horseshoe Fall. "Can you lead me there to-morrow?" I asked. He eyed me inquiringly, weighing, perhaps, the chances of a man of light build, and with grey in his whiskers, in such an undertaking. "I wish," I added, "to see as much of the Fall as can be seen, and where you lead I will endeavor to follow." His scrutiny relaxed into a smile, and he said, "Very well, I shall be ready for you to-morrow."

On the morrow, accordingly, I came. In the hut at Biddle's Stair I stripped wholly, and redressed according to instructions—drawing on two pairs of woolen pantaloons, three woolen jackets, two pairs of socks, and a pair of felt shoes. Even if wet, my guide assured me that the clothes would keep me from being chilled; and he was right. A suit and hood of yellow oil-cloth covered all. Most laudable precautions were taken by the young assistant who helped to dress me to keep the water out; but his devices broke down immediately when severely tested.

We descended the stair; the handle of a pitchfork doing in my case, the duty of an Alpenstock. At the bottom, the guide inquired whether we should go first to the Cave of the Winds, or to the Horseshoe, remarking that the latter would try us most. I decided on getting the roughest done first, and he turned to the left over the stones. They were sharp and trying. The base of the first portion of the cataract is covered with huge boulders, obviously the ruins of the limestone ledge above. The water does not distribute itself uniformly among these, but sucks for itself channels through which it pours torrentially. We passed some of these with wetted feet, but without difficulty. At length we came to the side of a more formidable current. My guide walked along its edge until he reached its least turbulent portion. Halting, he said, "This is our greatest difficulty; if we can cross here, we shall get far towards the Horseshoe."

He waded in. It evidently required all his strength to steady him. The water rose above his loins, and it foamed still higher. He had to search for footing, amid unseen boulders, against which the torrent rose violently. He struggled and swayed, but he struggled successfully, and finally reached the shallower water at the other side. Stretching out his arm, he said to me, "Now, come on." I looked down the torrent as it rushed to the river below, which was seething with the tumult of the cataract. De Saussure recommended the inspection of Alpine dangers, with the view of making them

familiar to the eye before they are encountered; and it is a wholesome custom in places of difficulty to put the possibility of an accident clearly before the mind, and to decide beforehand what ought to be done should the accident occur. Thus wound up in the present instance, I entered the water. Even where it was not more than knee deep, its power was manifest. As it rose around me, I sought to split the torrent by presenting a side to it; but the insecurity of the footing enabled it to grasp my loins, twist me fairly round, and bring its impetus to bear upon my back. Further struggle was impossible; and feeling my balance hopelessly gone, I turned, flung myself toward the bank just quitted, and was instantly, as expected, swept into shallower water. The oil-cloth covering was a great incumbrance; it had been made for a much stouter man, and standing upright after my submersion, my legs occupied the centre of two bags of water. My guide exhorted me to try again. Prudence was at my elbow whispering dissuasion; but, taking everything into account, it appeared more immoral to retreat than to proceed. Instructed by the first misadventure, I once more entered the stream. Had the Alpenstock been of iron it might have helped me; but as it was, the tendency of the water to sweep it out of my hands rendered it worse than useless. I, however, clung to it by habit. Again the torrent rose, and again I wavered; but by keeping the left hip well against it, I remained upright, and at length grasped the hand of my leader at the other side. He laughed pleasantly. The first victory was gained, and he enjoyed it. No traveler he said was ever here before! Soon afterwards, by trusting to a piece of driftwood which seemed firm, I was again taken off my feet, but was immediately caught by a protruding rock.

We clambered over the boulders towards the thickest spray, which soon became so weighty as to cause us to stagger under its shock. For the most part nothing could be seen; we were in the midst of bewildering tumult, lashed by the water, which sounded at times like the cracking of innumerable whips. Underneath this was the deep resonant roar of the cataract. I tried to shield my eyes with my hands, and look upwards; but the defence was useless. The guide continued to move on, but at a certain place he halted, and desired me to take shelter in his lee, and observe the cataract. The spray did not come so much from the upper ledge, as from the rebound of the shattered water when it struck the bottom. Hence the eyes could be protected from the blinding shock of the spray, while the line of vision to the upper ledges remained to some extent clear. On looking upwards over the guide's shoulder I could see the water bending over the ledge, while the Terrapin Tower loomed fitfully through the intermittent spray gusts. We were right under the tower. A little farther on the cataract, after its first plunge, hit a protuberance some way down, and flew from it in a prodigious burst of spray; through this we staggered. We rounded the promontory on which the Terrapin Tower stands, and moved, amidst the wildest commotion, along the arm of the Horseshoe, until the boulders failed us, and the cataract fell into the profound gorge of the Niagara River.

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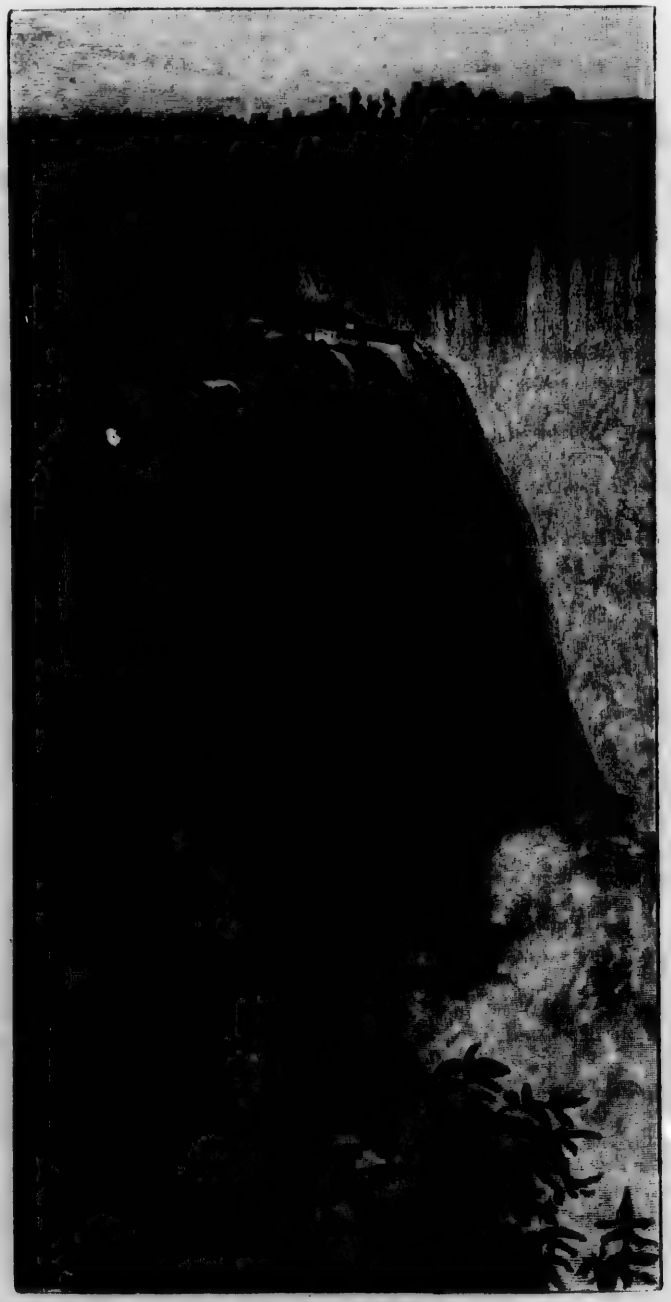

HORSESHOE FALL.

NIAGARA'S CANYON.

W. H. BALLOU.

MANY attempts were made previous to the government survey in 1876, to obtain the depth of the water in the canyon below the Falls. Bars of railroad iron, pails of stones, and all unreasonable and awkward instruments were attached to long lines and lowered from the railway suspension bridge, but positively refused to sink. The reason for this is obvious. The very bulk of the instruments was sufficient, no matter what their weight, to give the powerful undercurrent the means to buoy them upon or near the surface. Our party, however, with a small sounding lead of twelve pounds weight, attached to a slender cord, easily obtained the depths from the Falls to the railway suspension bridge. One day we launched a small boat at the inclined railway, and entered on a most exciting and perilous exploration of this part of the canyon. The old guide, long in charge of the miniature ferry situated here accompanied the party. With great difficulty we approached within a short distance of the American Falls, which darted great jets of water upon us and far out into the stream. The roar was so terrible that no voice or human sound, however near we were to one another, could be heard. The leadsman cast the line, which passed rapidly down, and told of eighty-three feet. This was quite near the shore. Passing out of the friendly eddy which had assisted us so near the Falls we shot rapidly down the stream. The next cast of the lead read one hundred feet, deepening to one hundred and ninety-three feet at the inclined railway. The average depth to the Swift Drift, where the river suddenly becomes narrow, with a velocity too great to be measured, was one hundred and fifty-three feet. Just under the railway bridge the whirlpool rapids set in, and so violently are the waters agitated that they rise like ocean billows to the height of twenty feet. At this point I computed the depth at two hundred and ten feet, which was accepted as approximately correct.

The geological formation of Niagara's canyon is too well understood to bear comment. Some of the topographical appearances, however, may be mentioned. The canyon's walls range from two hundred and seventy to three hundred and sixty feet in height above the water level. Of course they are highest at their termination at Lewiston, where, on the opposite side, the base of Brock's Monument is three hundred and sixty-five feet above water in the canyon. The walls are continually crumbling owing to the action of the atmosphere, frost, and miniature springs. The *débris* is driven out into Lake Ontario, forming what are known as the Brickbat Shoals, situated three and a half miles from the river's mouth. The river within the walls, more especially where the canyon is narrow, is subject to rise and fall at short intervals, if the wind is heavy on Lake Erie.

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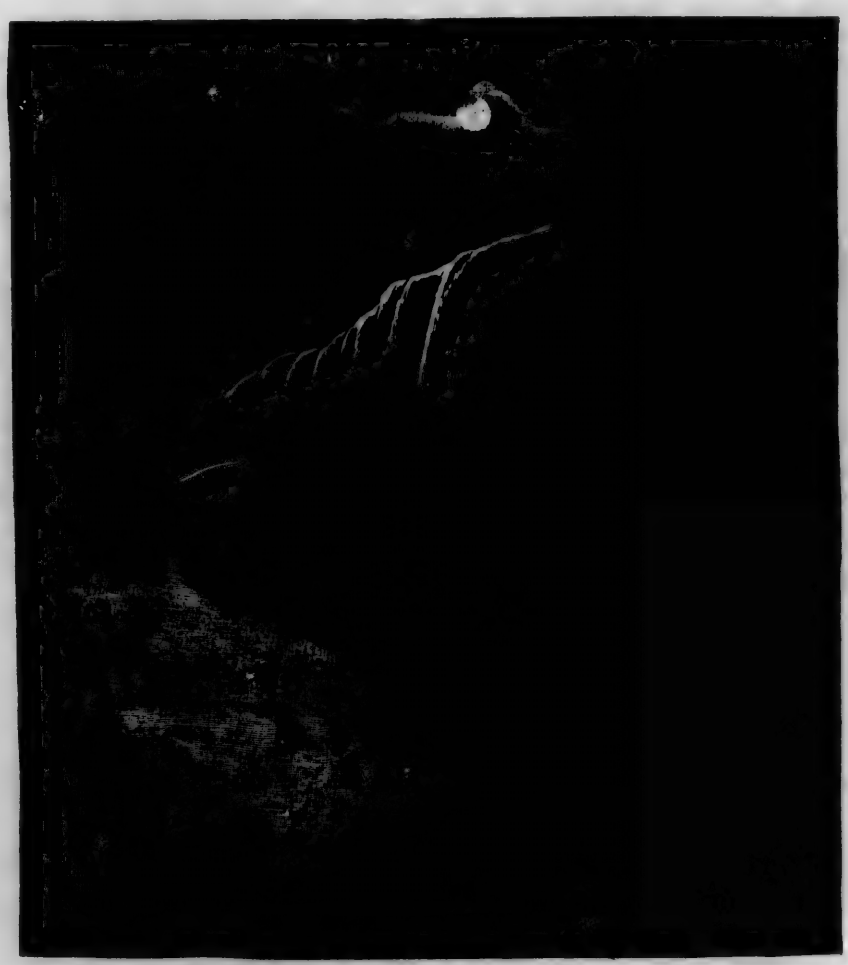


NIAGARA BY MOONLIGHT.

CAPTAIN WEBB'S LAST SWIM.

LIKE most men who make hazardous feats in public for money, Captain Webb was moved as much by desire to increase his wealth for the sake of his family as to gain further notoriety when he made his mad attempt to swim down the Whirlpool Rapids and through the Whirlpool.

The announcement of this projected feat drew a great multitude to Niagara Falls. It was an undertaking that had been heralded by the press, and the chances of success and failure had been widely agitated by the public. Captain Webb himself had no doubt about his ability to safely perform the hazardous trip. He had coped with the sea many times. For jumping from a Cunard steamer during a storm, to save a sailor who had fallen overboard, he had received at the hands of the Duke of Edinburgh the first gold medal the Royal Humane Society had given. He had swam across the English Channel from Dover to Calais. In this country he swam from Sandy Hook to Manhattan Beach. After looking carefully at the waters of Niagara, he failed to perceive that their depths were more dangerous than the waves of the ocean.

It was on the 24th day of July, 1883, at a few minutes past four o'clock in the afternoon that Captain Webb made his fearful plunge. From a boat rowed to the center of the stream, at a point about one-quarter mile from the head of the rapids, he dived, head first, into the water. After a few vigorous strokes he was in the rapids, his form, as seen from the great bluff above, looking like a mere speck of matter buffeting with the waves. "He went," says one writer, "like an arrow shot from a bow, the first great wave he struck he went under, but in a second appeared way beyond. The great waves rushed over him occasionally, but he always seemed ready to meet them. His great chest was boldly pushed forward, and occasionally half of the magnificent physique of the reckless adventurer was lifted from the water, but he bravely kept his position through it all, and seemed perfectly collected and at home."

He went safely through the upper rapids, then passed through to the lower ones, a trip more perilous as the waves dash higher and the water is confined in a narrower space. The spectators watched breathless as he was borne onward through this awful sea. His body rising alternately above, or sinking beneath the maddened waves. When he entered the Whirlpool he threw up one of his arms like a danger signal, a second later he was buried beneath the waters of that fearful maelstrom.

This was the last seen of this daring swimmer until the afternoon of the 28th, when his body was recovered in the river below Lewiston. When found, his arms and feet were extended as though in the act of swimming. From the appearance of the body, physicians were of opinion that death had not been caused by asphyxia, drowning, or local injury to the body from contact with hard substances, but was due to the force of the water in the rapids, which comes with such force upon the respiratory organs that no living body can pass through them alive. In the first breaker Captain Webb was subjected to this pressure, death resulting.

NIAGARA.

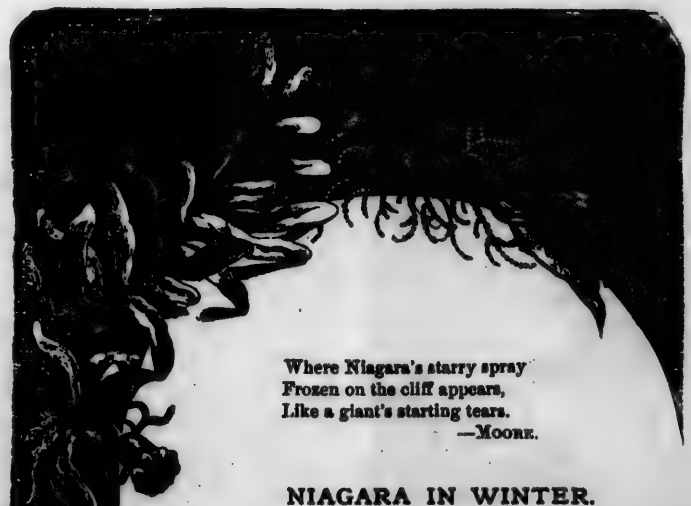
Translated from the Spanish of Maria Jose Heredeia, by William Cullen Bryant.

"TREMENDOUS torrent! for an instant hush
The terrors of thy voice, and cast aside
Those wide involving shadows, that my eyes
May see the fearful beauty of thy face!
* * * * * *
Thou flowest on in quiet, till thy waves
Grow broken 'midst the rocks; thy current then
Shoots onward like the irresistible course
Of destiny. Ah, terribly they rage,—
The hoarse and rapid whirlpools there! My brain
Grows wild, my senses wander, as I gaze
Upon the hurrying waters; and my sight
Vainly would follow, as toward the verge
Sweeps the wide torrent. Waves innumerable
Meet there and madden,—waves innumerable
Urge on and overtake the waves before,
And disappear in thunder and in foam.

They reach, they leap the barrier,—the abyss
Swallows insatiable the sinking waves.
A thousand rainbows arch them, and woods
Are deafened with the roar. The violent shock
Shatters to vapor the descending sheets.
A cloudy whirlwind fills the gulf, and heaves
The mighty pyramid of circling mist
To heaven. * * * *
What seeks my restless eye? Why are not here,
About the jaws of this abyss, the palms,—
Ah, the delicious palms,—that on the plains
Of my own native Cuba spring and spread
Their thickly foliaged summits to the sun,
And in the breathings of the ocean air
Wave soft beneath the heavens unspotted blue?

But no, Niagara,—thy forest pines
Are fitter coronal for thee. The palm,
The effeminate myrtle and pale rose may grow
In gardens and give out their fragrance there,
Unmanning him who breathes it. Thine it is
To do a nobler office. Generous minds
Behold thee, and are moved and learn to rise
Above earth's frivolous pleasures; they partake
Thy grandeur at the utterance of thy name.
* * * * * *
Dread torrent, that with wonder and with fear
Dost overwhelm the soul of him who looks
Upon thee, and dost bear it from itself,—
Whence hast thou thy beginning? Who supplies
Age after age, thy unexhausted springs?
What power hath ordered that, when all thy weight
Descends into the deep, the swollen waves
Rise not and roll to overwhelm the earth?

The Lord hath opened his omnipotent hand,
Covered thy face with clouds and given his voice
To thy down-rushing waters: he hath girt
Thy terrible forehead with his radiant bow
I see thy never-resting waters run,
And I bethink me how the tide of time
Sweeps to eternity."



Where Niagara's starry spray
Frozen on the cliff appears,
Like a giant's starting tears.
—MOORE.

NIAGARA IN WINTER.

IT is a sign of the growing good taste of the traveling public in America, that it is becoming with the years more appreciative of the charms of Niagara in winter.

Not less glorious are the great Falls when summer departs, and they are delivered to the undisputed sway of the Ice King.

Then the clouds of spray, which Fanny Butler has called so beautifully "the everlasting incense of the waters," becomes congealed and fall in fleecy folds around the base of the cataract. In place of verdure, the trees are covered with glittering masses of snow and ice. On each side of the Falls from the ledges and overhanging cliffs, huge icicles are suspended, which, in the bright sunshine, ray out corruscations outrivaling in splendor those gleams which tradition has assigned as coming from the Great Carbuncle of the White Mountains.

Nothing more fairy-like and enchanting can be conceived. It holds the fancy like an Arabian Night's tale. To make an extract from a beautiful description by Principal Grant, of Queen's University: "No marvels wrought by genii and magicians in Eastern tales could surpass the wonderful creations that rise along the surrounding banks and hang over the walls of the cataract. Glittering wreaths of icicles, like jeweled diadems, gleam on the brow of every projecting rock and jutting crag. Arches, pillars and porticos of shining splendor are grouped beneath the overhanging cliffs, giving fanciful suggestions of fairy palaces beyond. Every fallen fragment of rock under its icy covering becomes a marble column, pyramid or obelisk, and masses of

ICE FORMATIONS.

frozen spray stand out here and there in graceful and statuesque forms, easily shaped by imagination into the half-finished work of a sculptor. Every rift and opening in the cliff is transformed into an alabaster grotto, with friezes and mouldings "all fretted and froze" with filagree wreaths and festoons, and filmy veils and canopies of lace-like pattern and gossamer texture; and on every curve and angle, round every fissure and crevice, some fantastic and lovely decoration is woven by winter's master artist, King Frost. Over the Horseshoe towards Goat Island and the Bridal Veil Fall, the water pours in thin, silvery sheets, which dissolve into white curling mists as they slide slowly down. Pinnacles of ice, stretching high above them, break these falling streams. The American Fall, through its hovering veil of spray, seems transformed into wreaths of frozen foam. The face of Goat Island is resplendent with huge many-tinted icicles, showing all the colors of the rocks on which they are formed; and on either shore the undercliffs are hung with lovely draperies of frozen spray. Every house and fence and railing, every tree and shrub and tiny twig and blade of grass on which this wonder-working spray falls and freezes, becomes wrapped in a gleaming white crust, and glistens in the sun as if made of crystal and mother-of-pearl. From the tips of the evergreen branches hang clusters of ice balls, popularly called ice apples, which flash and glitter when the rays of sunlight fall on them, like the jewels growing on the trees of the magic garden in the Arabian Nights. Still more fairy-like are the evanescent charms produced by a night's hoar frost, fringing the pearly covering in which everything is wrapped with a delicate, fragile efflorescence, and giving a soft, shadowy, visionary aspect to the whole scene as if it were the creation of some wonderful dream. Then as the sun, before which its unearthly beauty melts away, shines out, all changes for a few brief minutes into a sparkling, dazzling glory, as if a shower of diamond dust had suddenly fallen."

In front of the Falls, at the foot of the cataract, a natural bridge is formed in some winters by the precipitation of ice blocks several tons in weight; these coming over the cataract become firmly jammed together outside the basin, forming a bridge from shore to shore, sometimes extending far down the river. From this ice bridge a near sight can be had of the maddened waters as they plunge into the vortex below. Over this bridge tourists, sight-seers, and idlers of every description pass backwards and forwards, the roughness of the road often broken and uneven in places, and thickly encrusted with frozen spray, giving a little difficulty and excitement to the passage, though the immense thickness of the ice blocks so firmly wedged together, make it for the time as safe as *terra firma*. The veiw of the Falls from the ice is magnificent, but the ice hills are a still greater attraction. These are formed among the rocks at the foot of the American Fall by accumulation of frozen spray, rising layer above layer, till immense cones of ice, forty, sixty, even eighty feet high are made. All day long boys in their small hand-sleds slide down these huge slopes, and sometimes on moonlight nights toboggan parties assemble and enjoy the exciting amusement, amidst romantic and picturesque surroundings nowhere else to be found.

THE CATARACT AS SEEN BY ELECTRIC LIGHT.

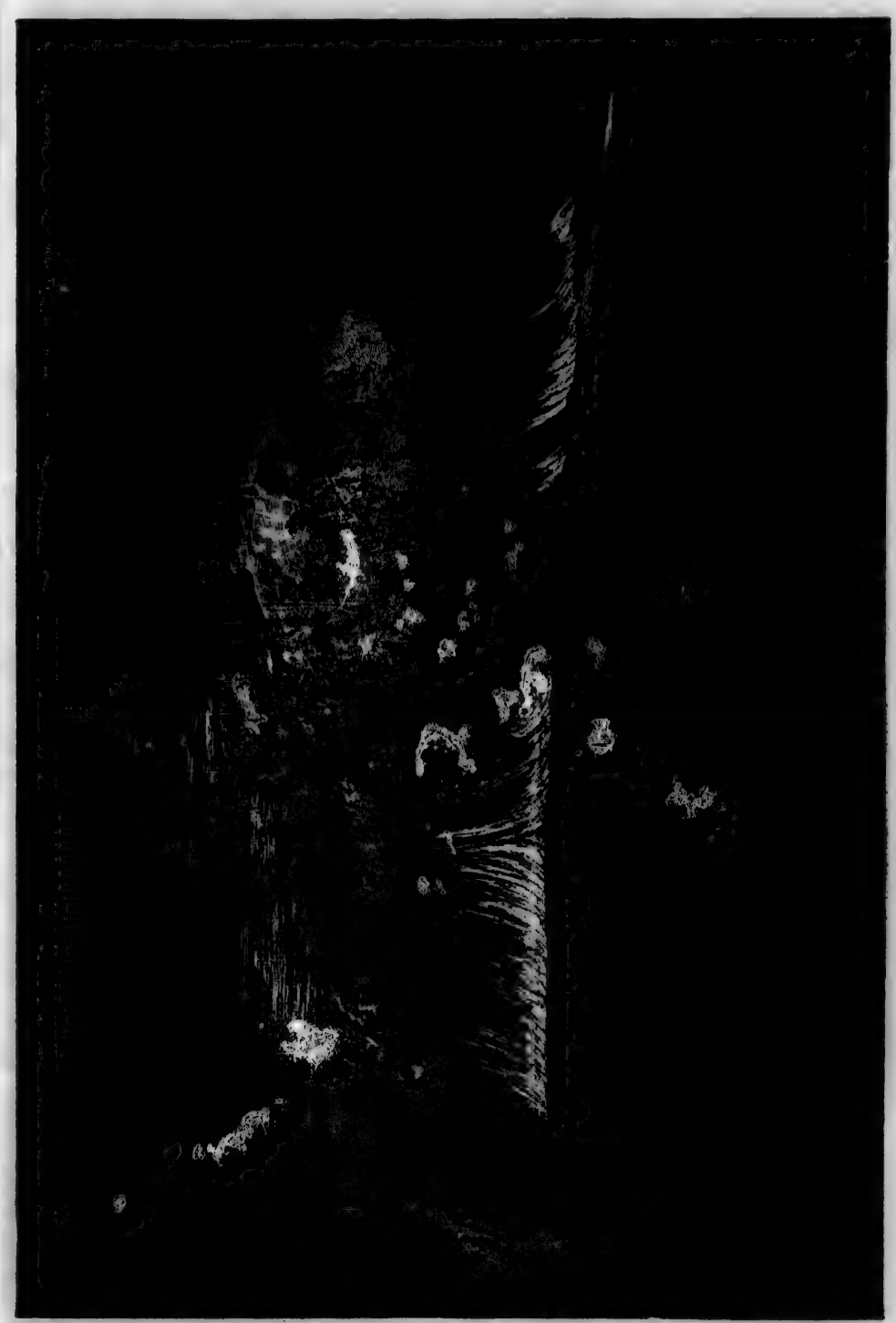
TO get more brilliant effects upon the Falls by night, man has had the audacity to call in art as an aid to nature. At Niagara the electric light has been put into requisition as an illuminator. This light is placed upon the table-land of Goat Island on what is now known as Prospect Park. Thrown through white and colored glasses upon fountains of water and called the Electric Fountains, they give a pleasing effect. The grounds at Prospect Park are illuminated each evening by the electric light, one edge of the American Fall and Rapids are so illuminated by them.

Lady Duffus Hardy describes this light as it appeared to her on her first visit to Niagara. "It was," she writes, "a moonless night, and in the dusk we could scarcely trace the vast vague outline of the two falls, divided by the blurred mass of shapeless shadows which we learned was Goat Island. As we looked upon them silently, and listened to the ceaseless boom-like distant thunder, which shook the ground beneath our feet, across the snowy veil of the American Fall, to our left, shot rays of rosy light which melted into amber, then into emerald. They were illuminating the great waters with colored calcium lights!"

On the occasion of the visit of the Prince of Wales in 1860, the Falls were illuminated on a moonless night by the electric light. According to a writer in Scribner's Magazine, "The banks above and all about on the rocks below, on the lower side of the road down to the Canada bank and along the water's edge, were placed numerous colored and white calcium, volcanic, and torpedo lights. At a given signal they were all at once set aflame. At the same time, rockets and wheels and flying artillery were set off in great abundance. The shore was crowded with people and the scene was of surpassing magnificence."

Opinion is certainly divided upon this intrusion of cheap theatrical effects upon a spectacle in itself so sublime. Any attempt to improve Niagara Falls seems to many to be as foolish as

> "To gild refined gold, to paint the lily,
> To throw a perfume on the violet,
> To smooth the ice, or add another hue
> Unto the rainbow, or with taper light
> To seek the beauteous eye of heaven to garnish."



THE THREE SISTERS ISLANDS.

FROM the head of the third of the Three Sisters Islands is seen one continuous cascade, extending as far as the eye can reach from Goat Island across to the Canada shore, varying from ten to twenty feet in height. This is a miniature Niagara, from which rises a cloud of spray similar to that of the Great Falls, and presents a peculiar phenomena usually termed the Leaping Rock. The water striking against the rock rises perpetually in an unbroken column twenty or more feet high, produces a most brilliant effect.

Grand views of the Rapids are to be had from the Suspension Bridges, which were built in 1868 to connect the Three Sisters with Grand Island. On these islands a cool retreat is to be had in the warmest days of summer. Their dense woods afford a pleasant shade, while between the branches of the trees the fortunate tourist can gaze at the most enchanting scenery. He can see the wooded slopes of Goat Island, the fall of the Horseshoe in the distance, and near him the cascades under the bridges formed by the current passing over the ledges of rocks.

Won by the loveliness of the Three Sisters Islands, Francis Abbot, called the "Hermit of the Falls," applied for a piece of ground on them on which he might construct a cottage after his own model, which comprised among other peculiarities, isolation by means of a drawbridge. This, of course, was refused, but he took up his residence in an old house that had been deserted by its inmates. Whoever these were who had chosen so wild and romantic a spot to live in, had a soul for the beautiful that no other place could satisfy. After an absence of less than two years, they returned to their old abode—to listen once more to the sound of the mighty cataract; to press again with their feet the soil which is as enchanted ground; to be, in fine, where Nature

> "But one vast realm of wonder spreads around,
> And all the Muse's tales seem truly told,
> Till the sense aches with gazing to behold."

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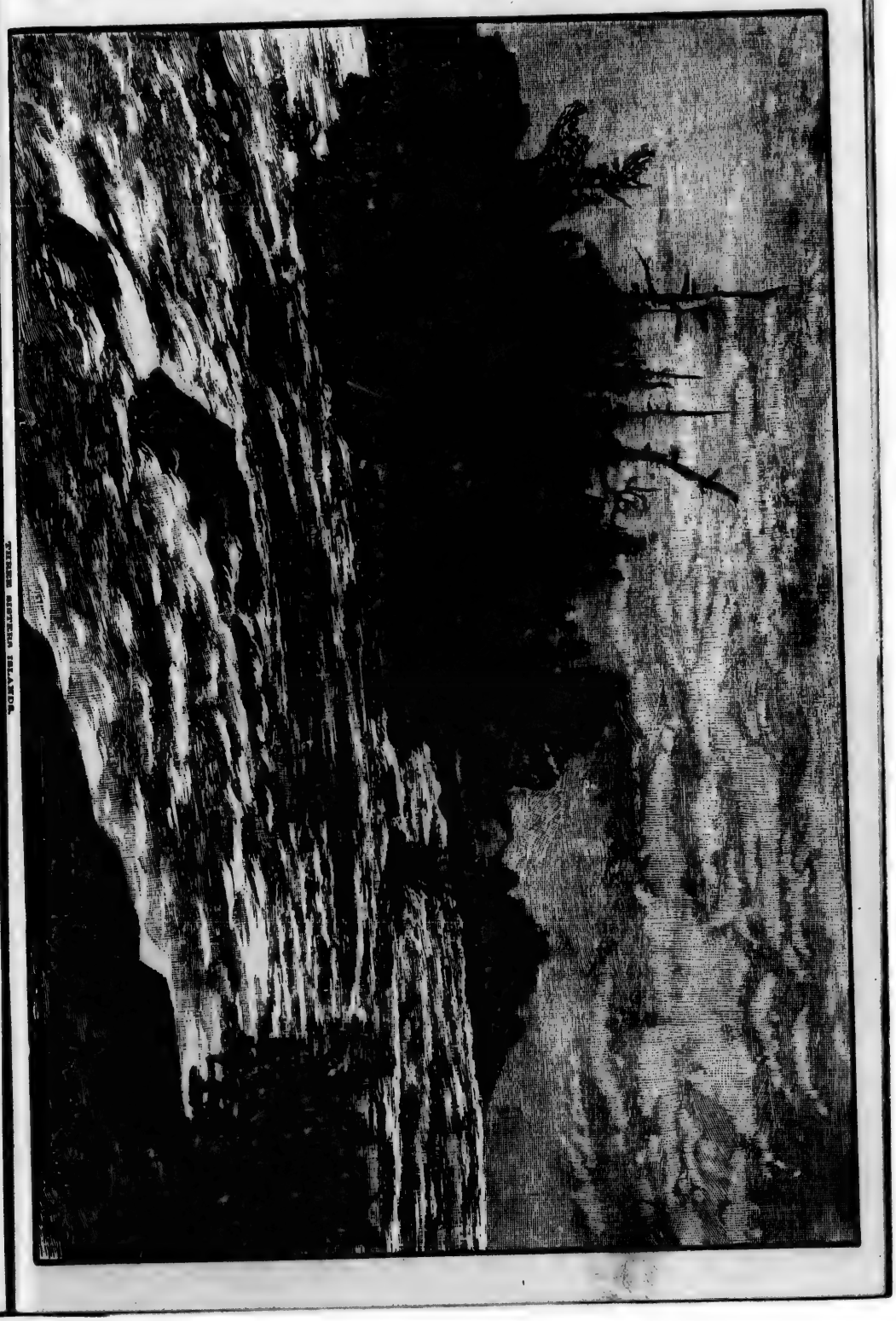


THREE SISTERS ISLANDS.

THE LOST CHILDREN.

A Legend of Luna Island.

AMONG the accidents chronicled as having happened at Niagara is one that is said to have taken place on the northern shore of Luna Island. On a beautiful day in summer, when the scenery was at its loveliest, a party of tourists from the west crossed over the bridge which leads from the famous Cave of the Winds to Luna Island. They were all in the gayest possible spirits. Two children who were with them laughed with delight at seeing that it was possible to dip their hands into the Rapids which here runs so close that one can reach the rushing tide as it passes over the verge. The trembling of

the Island was remarked, a trembling which although it takes place the imagination heightens the impression. They looked at and admired the many Iris bows which are seen here to the best advantage. In the midst of their fun and frolic, the little girl, who was some seven years of age, advanced quite near the brink of the cliff. A young lad who was near caught her by the dress, a light summer material, which giving way as he pulled it, the tearing gave an impetus which sent the child over into the terrible Rapids. Moved by a brave impulse to save her, the boy sprang into the waters after her, and both were carried down into that whirling mass of waves which seldom yield back that which is given to them.

The parents, broken-hearted at the loss of their children, waited for weeks in the hopes that the waters would place the dead within their reach. Their wailing was in vain, and at last they were obliged to return childless to their desolate home.

THE RAPIDS BY MOONLIGHT.

MARGARET FULLER.

AS I rode up to the neighborhood of the Falls, a solemn awe imperceptibly stole over me, and the deep sound of the ever-hurrying rapids prepared my mind for the lofty emotions to be experienced. When I reached the hotel I felt a strange indifference about seeing the aspiration of my life's hopes. I lounged about the rooms, read the stage-bills upon the walls, looked over the register, and finding the name of an acquaintance, sent to see if he was still there. What this hesitation arose from, I know not; perhaps it was a feeling of my unworthiness to enter this temple which nature has erected to its God.

At last, slowly and thoughtfully I walked down to the bridge leading to Goat Island, and when I stood upon this frail support, and saw a quarter of a mile of tumbling, rushing rapids, and heard their everlasting roar, my emotions overpowered me, a choking sensation rose to my throat, a thrill rushed through my veins, "my blood ran rippling to my fingers' ends." This was the climax of the effect which the falls produced upon me—neither the American nor the British fall moved me as did these rapids. For the magnificence, the sublimity of the latter, I was prepared by descriptions and by paintings. When I arrived in sight of them I merely felt: "Ah, yes! here is the fall, just as I have seen it in a picture." When I arrived at the Terrapin Bridge I expected to be overwhelmed, to retire trembling from this giddy eminence, and gaze with unlimited wonder and awe upon the immense mass rolling on and on; but, somehow or other, I thought only of comparing the effect on my mind with what I had read and heard. I looked for a short time, and then, with almost a feeling of disappointment, turned to go to the other points of view, to see if I was not mistaken in not feeling any surpassing emotion at this sight. But from the foot of Biddle's stairs, and the middle of the river, and from below the Table Rock, it was still "barren, barren all."

Provoked with my stupidity in feeling most moved in the wrong place, I turned away to the hotel, determined to set off for Buffalo that afternoon. But the stage did not go, and after nightfall as there was a splendid moon, I went down to the bridge and leaned over the parapet, where the boiling rapids came down in their might. It was grand, and it was also gorgeous; the yellow rays of the moon made the broken waves appear like auburn tresses twining around the black rocks. But they did not inspire me as before. I felt a foreboding of a mightier emotion to rise up and swallow all others, and

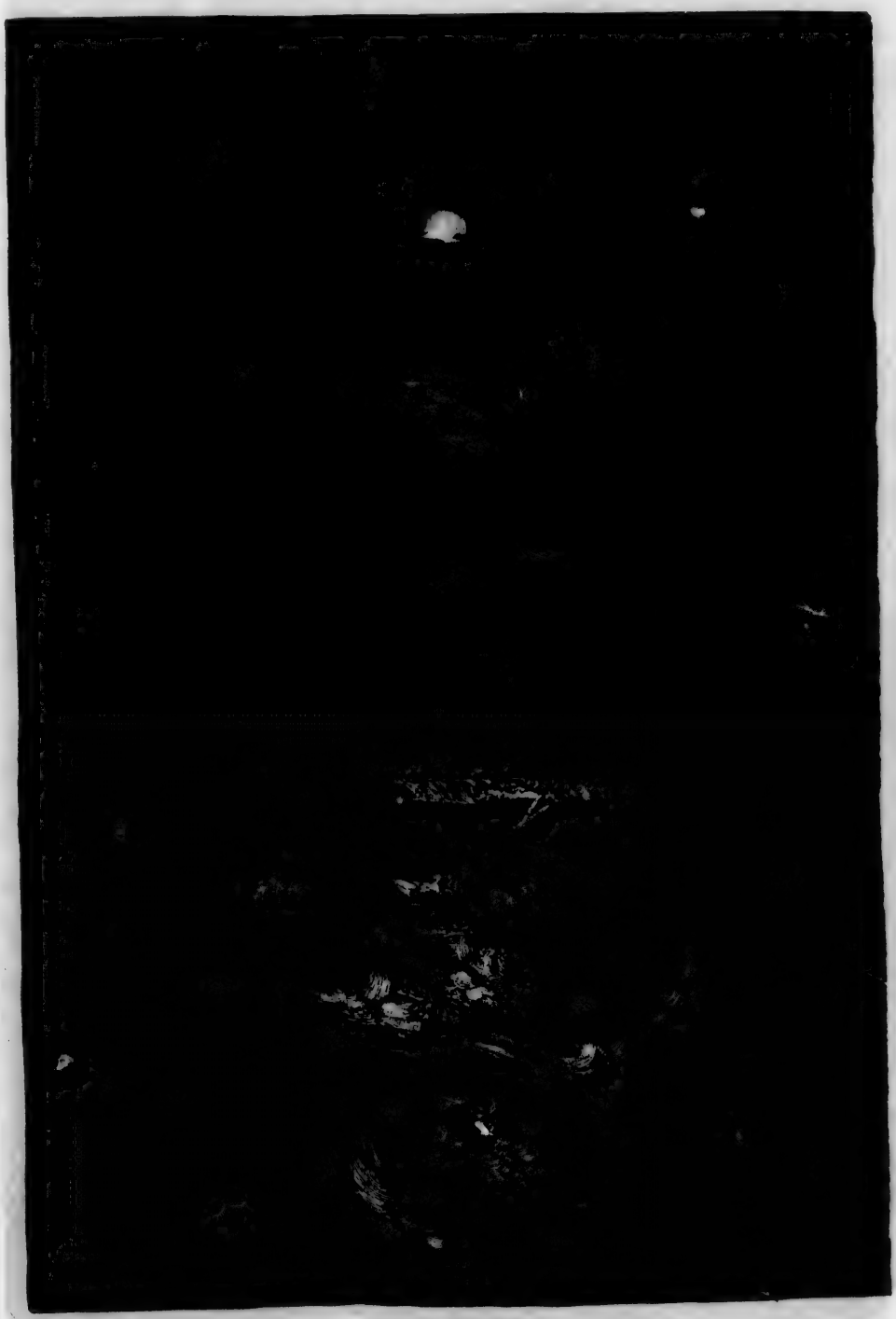
I passed on to the Terrapin Bridge. Everything was changed, the misty apparition had taken off its many colored crown which it had worn by day, and a bow of silvery white spanned its summit. The moonlight gave a poetical indefiniteness to the distant parts of the waters, and while the rapids were glancing in her beams, the river below the falls was as black as night, save where the reflection of the sky gave it the appearance of a shield of blue steel. No gaping tourists loitered, eyeing with their glasses or sketching on cards the hoary locks of the ancient river god. All tended to harmonize with the natural grandeur of the scene. I gazed long. I saw how here mutability and unchangeableness were united. I surveyed the conspiring waters rushing against the rocky ledge to overthrow it in one mad plunge, till, like toppling ambition, o'erleaping themselves, they fall on t'other side, expanding into foam ere they reach the deep channel, where they creep submissively away.

Then arose in my breast a genuine admiration and a humble adoration of the Being who was the architect of this and of all. Happy were the first discoverers of Niagara, those who could come unawares upon this view and upon that, whose feelings were entirely their own. With what gusto does Father Hennepin describe "this great downfall of water, this vast and prodigious cadence of water, which falls down after a surprising and astonishing manner, insomuch that the universe does not afford its parallel. 'Tis true Italy and Swedeland boast of some such things, but we may well say that they be sorry patterns when compared with this of which we do now speak."

* * * * And now farewell, Niagara. I have seen thee, and I think all who come here must see thee; thou art not to be got rid of as easily as the stars. I will be here again beneath some flooding July moon and sun. Owing to the absence of light, I have seen the rainbow only two or three times by day; the lunar bow not at all. However, the imperial presence needs not its crown, though illustrated by it.

* * * * * * * * *

And now you have the little all I have to write. Can it interest you? To one who has enjoyed the full life of any scene, at any hour, what thoughts can be recorded about it seem like the commas and semicolons in the paragraphs —mere stops. Yet I suppose it is not so to the absent. At least I have read things written about Niagara, music and the like that interested *me*. Once I was moved by Mr. Greenwood's remark that he could not realize this marvel till, opening his eyes the next morning after he had seen it, his doubt as to the possibility of its being still there taught him what he had experienced. I remember this now with pleasure, though or because, it is so exactly the opposite to what I myself felt. For all greatness affects different minds, each in "its own particular kind," and the variations of testimony mark the truth of feeling.



RAPIDS BY MOONLIGHT.

THE MUSIC OF NIAGARA.

EUGENE THAYER.

Tone Construction.

IT had ever been my belief that Niagara had not been *heard* as it should be, and in this belief I eagerly turned my steps hitherward the first time a busy life would permit. What did I hear? The roar of Niagara? No. Having been everywhere about Niagara, above and below, far and near, over and under, and heard her voice in all its wondrous modulations, I must say that I have never for a single instant heard any *roar* of Niagara. From the first moment to the last, I heard nothing but a perfectly constructed musical tone—clear, definite, and unapproachable in its majestic perfection; a complete series of tones, all uniting in one grand and noble unison, as in the organ, and all as easily recognizable as the notes of any great chord in music. And I believe it was my life-long familiarity with the king of instruments which enabled me to detect so readily the tone construction of this mighty voice of the "thunder of waters."

I had been told that the pitch of this tone had been given by various persons. That were an easy task, although no two of them seem to have been unanimous. I propose to give much more than this, and the reader will find not only the pitch of the chief or ground tone given, but that of all accessory or upper tones, otherwise known as harmonic, collateral, or over tones; also the beat or accent of Niagara, with its rythmical vibrations and subdivisions, from the largest to the smallest, and all in such simple notation that anyone who understands the rudiments of music may readily comprehend it. Indeed, I believe that all good readers may understand it clearly without any special technical knowledge of music to assist them.

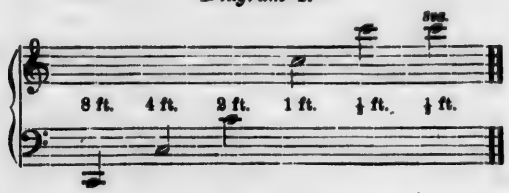
I have said that the tone of Niagara was like that of the full tone of a great organ. So literally true is this, that I cannot make my meaning clear without a brief outline of the construction of that great instrument.

A great organ has in it many pipes, varying from the size of an eagle's quill to three or four feet in diameter; and in length from a quarter of an inch to thirty-two feet. The quality of tone from these pipes also varies, from that of

the lightest zephyr to the voice of the tempest. To show the pitch and composition of the tone of Niagara, I will first give, in simple notation, the pitch of these various sized organ pipes.

The organ key-board has a compass of from four to five octaves. The fact that a great organ has three or four key-boards has nothing to do with the matter, all the key-boards in this respect being alike. The entire compass is as below written, including all chromatic intervals:

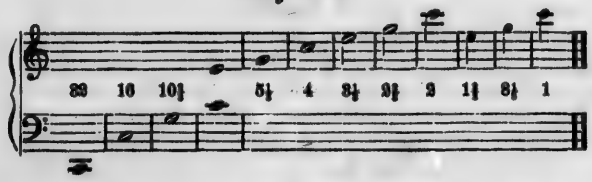
Diagram 1.



The first or lowest note is called eight foot C, the second four foot C, the third two foot C, and so on, these figures representing the length of the pipes which give the notes at their proper pitch. The sixteen foot C is an octave lower, and the thirty-two foot C (the lowest tone of any great organ) two octaves lower than the first note above given. I give the names in what the organ builders would call them, "foot lengths," in preference to using the other method. The reason will be evident further on.

Now, if we bring on the full power of a great organ, that is, draw all the so-called "stops,"—what do we hear? (Convenience of notation necessitates giving the octaves two octaves higher than their real pitch.) Let us suppose that the lowest note of the pedal is struck. We shall then hear the following notes—all two octaves lower be it remembered.

Diagram 2.



All of these tones will be heard from this one note, and yet all are united in one grand, clear and definite unison. This is as we hear them in the organ. Do we, or can we, hear all of them with equal distinctness in nature? No. In a high note we may faintly hear the lower or sub-harmonics. In a low note we may more easily hear a part of the over-tones. To hear them all would be impossible. Niagara gives us our best opportunity, but even there the last two or three notes were inaudible.

All the tones above the ground tone have been named over-tones or harmonics; the tones below are called the sub-harmonics, or under-tones. It

will be noticed that they form the complete natural harmony of the ground tone. What is the real pitch of this chord? According to our regular musical notation, the fourth note given represents the normal pitch or diapason; the reason being that the eight-foot tone is the only one that give the notes as written. According to nature, I must claim the first, or lowest note, as the real or ground tone. In this latter way I shall represent the true tone or pitch of Niagara.

How should I prove all this? My first step was to visit the beautiful Iris Island, otherwise known as Goat Island. Donning a suit of oil-cloth and other disagreeable loose stuff, I followed the guide into the Cave of the Winds. Of course, the sensation at first was so novel and overpowering that the question of pitch was lost in one of personal safety. Remaining here a few minutes, I emerged to collect my dispersed thoughts. After regaining myself, I returned at once to the point of beginning, and went slowly in again (alone), testing my first question of pitch all the way; that is, during the approach, while under the fall, while emerging, and while standing some distance below the face of the fall, not only did I ascertain this (I may say in spite of myself, for I could hear but one pitch), but I heard and sang clearly the pitch of all the harmonic or accessory tones, only of course several octaves higher than their actual pitch. Seven times have I been under these singing waters (always alone except the first time), and the impression has invariably been the same, so far as determining the tone and its components. I may be allowed to withhold the result until I speak of my experience at the Horseshoe Fall, and the American Fall proper—it being scarcely necessary to say that the Cave of the Winds is under the smaller cascade, known as the Central Fall.

My next step was to stand on Luna Island, *above* the Central Fall, and on the west side of the American Fall proper. I went to the extreme eastern side of the island, in order to lose as far as possible the sound of the Central Fall, and get the full force of the larger fall. Here were the same great ground tone and the same harmonics, differing only somewhat in pitch.

I then went over to the Horseshoe Fall and sat among the rapids. There it was again, only slightly higher in pitch than on the American side. Not then knowing the fact, I ventured to assert that the Horseshoe Fall was less in height, by several feet, than the American Fall; the actual difference is variously given at from six to twelve feet. Next I went to the Three Sisters Islands, and here was the same old story. The higher harmonics were mostly inaudible from the noise of the rapids, but the same two low notes were ringing out clear and unmistakable. In fact, wherever I was I *could not* hear anything else! There was no roar at all, but the same grand diapason—the noblest and completest one on earth! I use the word completest advisedly, for nothing else on earth, not even the ocean, reaches anywhere near the actual depth of pitch, or makes audible to the human ear such a complete and perfect harmonic structure.

—*Extract from Article in Scribner's.*

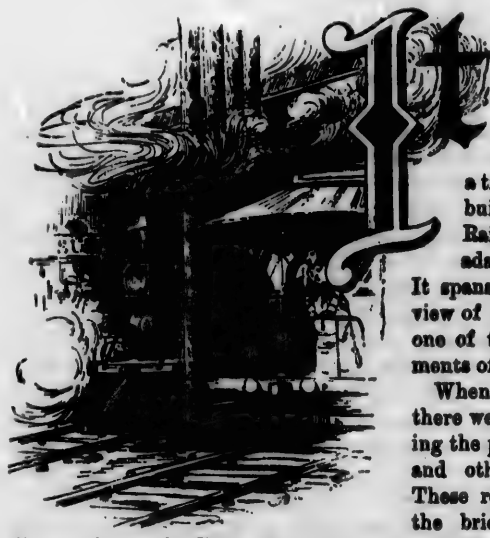
NATURE'S NOBLEST GARDEN.

WILLIAM ROBINSON.

THE noblest of nature's gardens that I have yet seen is that of the surroundings and neighborhood of the Falls of Niagara. Grand as are the colossal Falls, the rapids and the course of the river for a considerable distance above and below possess more interest and beauty.

As the river courses far below the Falls, confined between vast walls of rock—the clear water of a peculiar light greenish hue, and white here and there with circlets of yet unsoothed foam—the effect is startlingly beautiful, quite apart from the Falls. The high cliffs are crested with woods; the ruins of the great rock walls, forming wide irregular banks between them and the water's edge, often so far below that you sometimes look from the upper brink down on the tops of tall pines that seem diminished in size. The wild vines scramble among the trees; many flowers and shrubs seam the high rocks; in moist spots here and there, a sharp eye may detect many flowered tufts of the beautiful fringed Gentian, strange to European eyes; and beyond all, and at the upper end of the wood-embowered deep river-bed, a portion of the crowning glory of the scene—the Falls—a vast cliff of illuminated foam, with a zone towards its upper edge as of green molten glass. Above the Falls the scene is quite different. A wide and peaceful river carrying the surplus water of an inland sea, till it gradually finds itself in the coils of the rapids, and is soon lashed in such a turmoil as we might expect if a dozen unpolluted Shannons or Seines were running a race together. A river no more but a sea unreined. By walking about a mile above the Falls on the Canadian shore this effect is finely seen, the breadth of the river helping to carry out the illusion. As the great waste of waters descends from its dark grey and smooth bed and falls whitening into foam, it seems as if tide after tide were gale-heaped one on another on a sea strand. The islands stand in the midst of all this fierce commotion of waters—below, the vast ever running Falls; above, a complication of torrents that seem fitted to wear away iron shores; yet, there they stand, safe as if the spirit of beauty had in mercy exempted them from decay.

THE CANTILEVER BRIDGE.



IS as necessary to speak of the Cantilever Bridge when writing of Niagara as it is to mention the Falls, for if one is a masterpiece of nature, the other is a triumph of art. This bridge, built by the Michigan Central Railroad Company, unites Canada with the United States. It spans the Niagara river in full view of the mighty cataract, and is one of the most surprising monuments of the skill of the engineer.

When this structure was designed, there were several reasons for avoiding the plans of suspension bridges and other known styles in use. These reasons were the location of the bridge, which, being a short distance below the Falls, precluded the possibility of placing any supports in the center of the stream, which at this point is, at the water's edge, five hundred feet from shore to shore. The expense of the suspension bridges; the long time involved in their construction, and the swinging motion of that class of structures when loads are moved over them. The principle worked out in the plan of the cantilever is that of a trussed beam supported at or near its center, with the arms extending each way; one end being anchored or counter-weighted to provide for unequal loading. This is the only finished example of such a design, no other bridge having yet been completed of a similar character. Two, however, are in process of construction. The Firth of Forth Bridge in Scotland, with a clear span of sixteen hundred feet is being built upon this plan, and one in this country, the Fraser River Bridge, three hundred and fifteen feet clear span, on the Canadian Pacific.

The structure is a most massive one. Entering into its composition is a total weight of three thousand tons of iron and best manufactured steel. It is of sufficient width for a double track, and is built so solidly it can carry with perfect safety upon each track, at the same time, a freight train of the heaviest kind, extending the entire length of the bridge. The total length of the bridge proper, is nine hundred and nine feet nine inches, divided into two cantilevers of three hundred and ninety-five feet on the Canadian side, and the same number on the American. These are supported on steel towers arising from the water's edge. Between these towers, there is a clear space of five hundred feet over the river, making it the longest double track truss span in the world.

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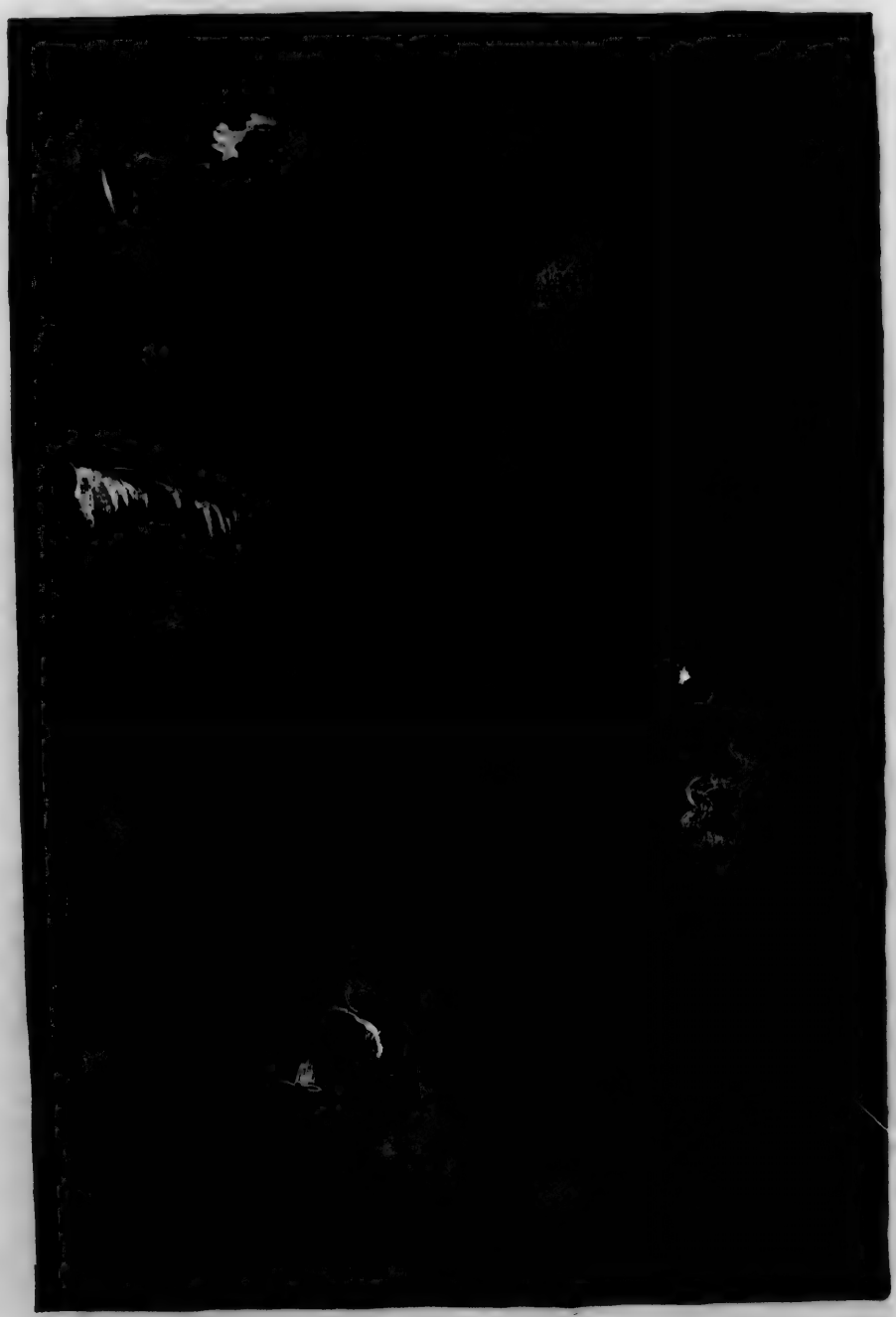
THE CANTILEVER BRIDGE.

SYNCOPE OF THE FALLS.

GEORGE W. HOLLEY.

ON the 29th of March, 1848, the river presented a remarkable phenomenon. There is no record of a similar one, nor has it been observed since. The winter had been intensely cold, and the ice formed on Lake Erie was very thick. This was loosened around the shores by the warm days of the early spring. During the day, a stiff easterly wind moved the whole field up the lake. About sundown, the wind chopped suddenly round and blew a gale from the west. This brought the vast tract of ice down again with such tremendous force that it filled in the neck of the lake and the outlet, so that the outflow of the water was very greatly impeded. Of course, it only needed a short space of time for the Falls to drain off the water below Black Rock. The consequence was that, when we arose in the morning at Niagara, we found our river was nearly half gone. The American channel had dwindled to a respectable creek. The British channel looked as though it had been smitten with a quick consumption, and was fast passing away. Far up from the head of Goat Island, and out into the Canadian rapids the water was gone, as it was also from the lower end of Goat Island, out beyond the tower. The rocks were bare, black and forbidding. The roar of Niagara had subsided almost to a moan. The scene was desolate, and but for its novelty and the certainty that it would change before many hours, would have been gloomy and saddening. Every person who has visited Niagara will remember a beautiful jet of water which shoots up into the air about forty rods south of the outer Sister in the great rapids, called, with a singular contradiction of terms, the "Leaping Rock." The writer drove a horse and buggy from near the head of Goat Island out to a point above and near to that jet. With a log-cart and four horses, he drew from the outside of the outer island a stick of pine timber hewed twelve inches square and forty feet long. From the top of the middle island was drawn a still larger stick, hewed on one side and sixty feet long.

There are few places on the globe where a person would be less likely to go lumbering than in the rapids of Niagara, just above the brink of the Horseshoe Fall. All the people of the neighborhood were abroad, exploring recesses and cavities that had never before been exposed to mortal eyes. The writer went some distance up the shore of the river. Large fields of the muddy bottom were laid bare. The shell-fish, the uni-valves and the bi-valves were in despair. The clams, with their backs up and their open mouths down in the mud, were making their sinuous courses toward the shrunken stream. This singular syncope of the waters lasted all the day, and night closed over the strange scene. But in the morning our river was restored in all its strength and beauty and majesty.



SPIRIT OF THE FALLS

THE HORSESHOE FALL.

N. P. WILLIS.

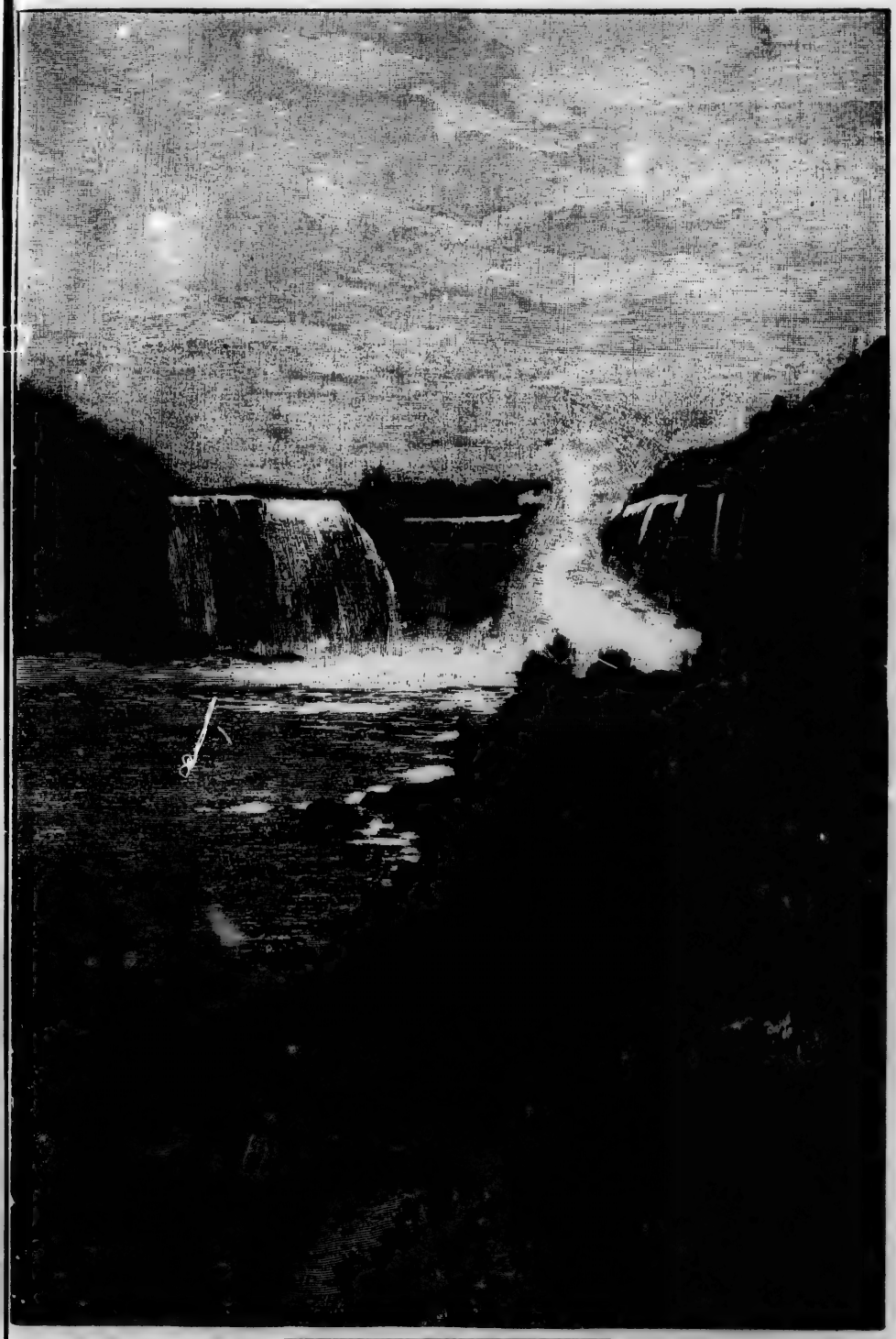
THE Horseshoe Fall, as a single object, is unquestionably the sublimest thing in nature. To know that the angle of the cataract, from the British shore to the tower, is nearly half a mile in length; that it falls so many feet with so many tons of water per minute; or even to see it, as here, admirably represented by the pencil; conveys no idea to the reader of the impression produced on the spectator. One of the most remarkable things about Niagara is entirely lost in the drawing—its *motion*. The visitor to Niagara should devote one day exclusively to the observation of this astonishing feature.

The broad flood glides out of Lake Erie with a confiding tranquillity that seems to you, when you know its impending destiny, like that of a human creature advancing irresistibly, but unconsciously, to his death. He embraces the bright islands that part his arms for a caress; takes into his bosom the calm tribute of the Tonewanta and Unnekuqua—small streams that come drowsing through the wilderness—and flows on, till he has left Lake Erie far behind, bathing the curving lines of his green shores with a surface which only the summer wind ruffles. The channel begins to descend; the still unsuspecting waters fall back into curling eddies along the banks, but the current in the centre flows smoothly still. Suddenly the powerful stream is flung with accumulated swiftness among broken rocks; and as you watch it from below, it seems tossed with the first shock into the very sky. It descends in foam, and from this moment its agony commences.

For three miles it tosses and resists, and, racked at every step by sharper rocks and increased rapidity, its unwilling and choked waves fly back, to be again precipitated onward, and at last reach the glossy curve convulsed with supernatural horror. They touch the emerald arch, and in that instant, like the calm that follows the conviction of inevitable doom, the agitation ceases, —the waters pause,—the foam and resistance subside into a transparent stillness,—and slowly and solemnly the vexed and tormented sufferer drops into the abyss.

Every spectator, every child is struck with the singular deliberation, the unnatural slowness, with which the waters of Niagara take their plunge. The laws of gravitation seem suspended, and the sublimity of the tremendous gulf below seems to check the descending victim on the verge, as if it paused in awe.

—*American Scenery.*



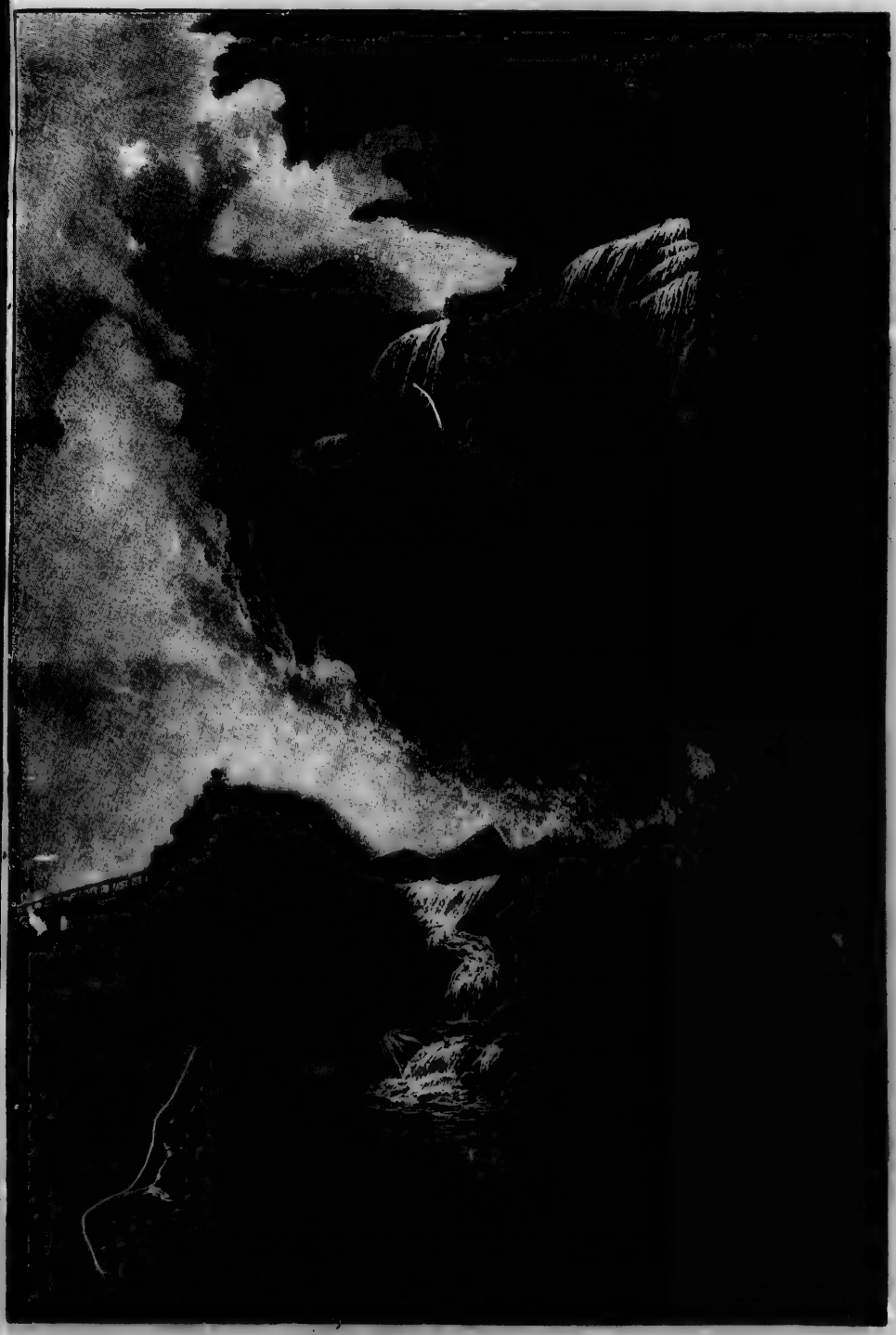
HORSESHOE FALL FROM THE FERRY ROAD.

ROCK OF AGES AND CAVE OF THE WINDS.

STANDING in front of the Cave of the Winds, like a sentinel on guard, is a huge boulder, to which the name has been given of "The Rock of Ages." This stone is a piece of the precipice which has broken away and fallen into its present position. It has been cut away by the action of the waters, and is one of the largest chips which nature has left in this portion of her workshop. From shape and position the Rock of Ages is inaccessible, but a smaller boulder close to it can be stood upon with perfect safety when the wind is blowing down the river or from the American shore. Here one can be within a few feet of the falling sheet without feeling any inconvenience from the spray.

From this point the grand trip is made behind the Fall. A trip, which N. P. Willis has said "is an achievement equivalent to a hundred shower baths, one severe cold, and being drowned twice." In his "Pencillings by the Way," Willis has recorded the escape made from a fearful death by a young lady of his party who had gone with them to the Cave of the Winds. It appears that in a spirit of youthful adventure this young girl went ahead of the guide; as she crossed over a narrow ledge of rock it broke behind her and she was left without footing to return. In this dilemma the guide was without resource. The young lady, pale and trembling, looked at the frightful abyss before her, then at the friends from whom she had been so suddenly separated, it might be forever. A gentleman of the party, however, was equal to the emergency; tall and muscular, he threw himself across the chasm in such a way that his body served for a bridge, which the young lady walked over. The gentleman was drawn back by his friends from his perilous position, and the party returned in happiness to their hotel. That which had threatened to be a tragedy, served for a comedy, or rather a thrilling tale, which served to amuse listeners for many days afterwards.

This young person was doubtless animated with that desire which considers it a famous thing to penetrate as far as possible "through these corridors of Æolus." The farther one goes in the Cave of the Winds the more unruly he finds the Prince of Air. Blasts appear to be blown at one time from every one of the thirty-two points of the compass. It is on record that a man did once, with Herculean effort, burst through the depending column of water, but was immediately, and with great force, thrown to the ground. After recovering from the shock, he could only rejoin his comrades by crawling face downward and digging his hands in the loose shale of the pathway.



ROCK OF AGES AND CAVE OF THE WINDS.

DISTINCTIVE CHARMS OF NIAGARA.

FREDERICK LAW OLMSTEAD.

I HAVE spoken of the *distinctive* charm of Niagara scenery. If it were possible to have the same conditions detached from the Falls (which it is not, as I shall show), Niagara would still be a place of singular fascination; possibly to some, upon whom the Falls have a terrifying effect, even more so than it is now. Saying nothing of the infinitely varied beauties of water and spray, and of water-worn rock, I will, for a purpose, mention a few elements which contribute to this distinctive charm.

The eminent English botanist, Sir Joseph Hooker, has said that he found upon Goat Island a greater variety of vegetation within a given space than anywhere in Europe, or east of the Sierras in America; and the first of American botanists, Dr. Asa Gray, has repeated the statement. I have followed the Apalachian chain almost from end to end, and traveled on horseback "in search of the picturesque" over four thousand miles of the Continent, without finding elsewhere the same quality of forest beauty which was once abundant about the Falls, and which is still to be observed in those parts of Goat Island where the original growth of trees and shrubs has not been disturbed, and where from caving banks, trees are not now exposed to excessive dryness at the root.

Nor have I found anywhere else such tender effects of foliage as were once to be seen in the drapery hanging down the wall of rock on the American shore below the Fall, and rolling up the slope below it, or with that still to be seen in a favorable season and under favorable lights, on the Canadian steeps and crags between the Falls and the ferry.

All these distinctive qualities—the great variety of the indigenous perennials and annuals, the rare beauty of the old woods, and the exceeding loveliness of the rock foliage—I believe to be a direct effect of the Falls, and as much a part of its majesty as the mist-cloud and the rainbow.

They are all, as it appears to me, to be explained by the circumstance that at two periods of the year when the northern American forest elsewhere is liable to suffer actual constitutional depression, that of Niagara is insured against like ills, and thus retains youthful luxuriance to an unusual age.

First, the masses of ice, which every winter are piled to a great height below the Falls, and the great rushing body of ice-cold water coming from the northern lakes in the spring, prevent at Niagara the hardship under which trees elsewhere often suffer through sudden checks to premature growth; and second, when droughts elsewhere occur as they do every few years, of such severity that trees in full foliage droop and dwindle, and even sometimes cast their leaves, the atmosphere at Niagara is more or less moistened by the constantly evaporating spray of the Falls, and in certain situations frequently bathed by drifting clouds of mist.

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